ACCS

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MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

FIRST OF 76 NEW TRAINS

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CURRENT TOPICS

Spreading Prosperity

NEGOTIATIONS between the Government and the British Motor Corporation over the B.M.C. £49 million expansion scheme have been satisfactorily concluded, it was disclosed last week, with the announcement that the corporation is to spend more than £20 million during the next two years on building and equipping new factories in Scotland, South Wales and Merseyside. Establishment of the new plants will bring much-needed relief to three areas of high unemployment, providing direct employment for a total of more than 11,000 people as well as attracting ancillary industries to the same areas. The B.M.C. plans to raise its annual output from 750,000 to one million vehicles within two years. Immediate plans aim at the extension of car and light commercial vehicle production at its Midlands plants and removal of the production of heavy commercial vehicles and tractors to a new factory, costing £8,800,000 and employing 5,600 people, at Bathgate, West Lothian. Another new factory costing £7,500,000 is to be built near Llanelly, adjacent to the Trostre Works of the Steel Company of Wales; there is to be extension of the existing radiator plant at Llanelly and a new £4,200,000 plant at Kirkby, near Liverpool, to rehouse the domestic appliance production of Fisher and Ludlow. The remainder of the £49 million expansion includes extensions costing £26 million to existing plants in the Midlands and further overseas expansion. This massive B.M.C. programme, though the first of which details have been announced, is only one of a number of similar expansion programmes now being planned by other leading British manufacturers.

B.E.A. Does Well

IN his latest message to the staff of British European Airways the chairman, Lord Douglas of Kirtleside, records with justifiable satisfaction the achievement of a record profit for the calendar year 1959. On a moving annual basis the corporation earned about £2 million after meeting interest charges. While he had hoped that passengers would exceed 3 million for the first time, the figure reached of 3,207,000 was even better than expected, while the increase in freight traffic of 24 per cent was felt to be even more satisfactory. The revenue load factor rose by 11 per cent and, whereas the capacity ton-miles offered were 7 per cent higher at 189,325,000, the load ton-miles sold rose from 106,175,000 to 126,444,000. As the chairman says, it is a very satisfactory achievement for an operator which derives so much of its revenue from short-haul and seasonal traffic. He might indeed have referred also to the substantial amount of unremunerative flying which is undertaken as social service operation and have pointed out the justification which this provided for the corporation being left with its route network unimpaired.

Anglo-European Co-operation

LECTURING to Europe House last week, Sir Brian Robertson, chairman of the B.T.C., dealt with co-ordination of transport services in Europe. He showed the considerable unity already achieved through the Berne Conventions, the International Union of Railways, the Wagons-Lits Company and its equivalents, and road transport bodies. The conventions in respect of inland waterways are among the earliest dealing with transport, that for the Danube dating from 1856 and for the Rhine from 1868. Some difficulties remained and traffic could be dealt with only within the framework imposed by Governments, particularly insofar as concerned fiscal and immigration regulations, which at best were a source of delay on services across frontiers. Across the water gap between us and the Continent some 50 ships owned by the B.T.C., European railways or their associates, were at work; in 1958 they handled 4,357,000 passengers, compared with 2,975,000 by air. On the busiest day of 1959, 44,000 passengers were conveyed by 89 boat trains and 44 sailings. Without anticipating the report of the Channel Tunnel Study Group, Sir Brian suggested that with a transit in little over four hours from the heart of London to the centre of Paris, the tunnel would make Great Britain part of the Continent of Europe. It need not be a purely Anglo-French conception, but might give rise to a major reorientation of railway traffic flow and railway modernisation schemes in other parts of Europe. As a questioner indicated, the increasing volume of traffic crossing the Channel might well justify changes at home, with through train connections from large provincial cities direct to the Channel ports, avoiding the Metropolis.

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Co-ordination in Rhodesia

ON January 19 Mr. J. H. Allen, acting general manager, Rhodesia Railways, and Mr. C. Boyd White, on behalf of the Federal Long Distance Operators' Association, announced the signing of a co-ordination agreement in respect of rail and road goods transport, effective from January 1, 1960, for an initial period of two years. The degree of co-ordination sought appears to go far beyond what has been achieved elsewhere, presumably owing to the early stage at which the matter has been tackled. The Long Distance Road Operators acknowledge that because the railway rating structure of the Rhodesia Railways is designed as being the most beneficial for the overall well-being of the state, they will support it. This implies that, along routes where road and rail transport compete, long-distance road hauliers will not undercut the railway rates for comparable traffics. Only high-rated traffic such as consumer goods, machinery, processed foods, etc., is affected; traffic originating within the Federation is all that falls within the scope of the agreement. Road transport operators will be entitled to apply for permits for carrying a proportion of additional traffic in the ratio which has applied previously. This does not guarantee to either road or rail services the proportions of traffic agreed upon, but relates only to the capacity for dealing with it. The parties will compete through the services they offer for the tonnage available.

New Paris Metro Scheme

WHEN the Paris Metropolitain Railway was first mooted towards the end of the nineteenth century the city fathers were adamant that the lines should be used only for local traffic; to that end they advocated a metre-gauge system. In the upshot, the standard gauge was adopted, but the loading gauge originally intended was retained, so that main-line vehicles could not possibly enter the Metro tunnels. With the development of planning schemes for the better distribution of the population—Paris has about 2.4 times the number of inhabitants per acre compared with London—the fear of the main-line services exploiting the Metro tunnels has been replaced by a desire to effect decentralisation by better cross-city facilities. One scheme proposed after the war was for a north-west to south-east connection from St. Lazare outer-suburban routes to those out of the Gare de Lyon and Bastille terminals. From the north and east the Gare du Nord and Gare de l'Est suburban routes would have been coupled to those from Montparnasse and Austerlitz southward, with a due south connection to Port Royal on the Metropolitain Ligne de Sceaux. The north-south route would have made a connection to Les Halles until such time as the markets themselves are decentralised. A new advance towards some such scheme is announced by the R.A.T.P. The Paris Transport Board now proposes to pick up main-line suburban services at Neuilly and Vincennes and to provide a deep-level line between those points across Paris, with a limited stop service parallel to Ligne No. 1 of the Metro. Capital cost is estimated at £164 million. These plans bear more resemblance to the projects of the London Railway Plan Committee for joining Southern suburban routes to the northern lines than to our abortive Deep-level District limited stop route or the provision of deep station tunnels for duplication of the Morden and Central Line tubes in the guise of wartime deep-level shelters.

Melbourne Underground

MELBOURNE, the capital city of Victoria, Australia, is another with an itch for an underground railway. Numerous plans have been made in the past for various types of cross-city services. For some years a line which would take part of the Victoria Railways 5 ft. 3 in. gauge suburban services was favoured. Sir Arthur Warner, Minister of Transport, who has spent a month in Britain studying transport undertakings, told us last week that on his return he proposed to introduce legislation for a loop railway which will pick up 80 per cent of the suburban electric services, and provide six stations in the central core of the city, so spaced that passengers will never have more than a 500-yard walk in the business area. There will be five miles of loop and connections; the relief to the phenomenally busy Flinders Street Station, which handles 60,000 passengers an hour at 11 platforms, and the improved distribution of commuters who at present have to walk from Flinders Street, will, it is hoped, make the suburban train more attractive than a private car. There are already endeavours in the city to make car parking difficult and costly; the amount of parking is inverse to the agony of it, said Sir Arthur. The cost of the three-track loop, intended to be operated two clockwise and one track anti-clockwise, reversing in the other peak period, will be considerable. An original proposal is for property owners in the central districts to provide 60 per cent of the capital by a levy of £325,000 a year for 53 years. Site values will, it is estimated, go up by £50 million.

The Induction Motor Advances

WHAT is undoubtedly the most important and perhaps the only significant advance in design of the squirrel-cage induction motor since its invention some 70 years ago has been achieved at the University of Bristol, where an efficient single-winding motor having inherent two-speed capability has been developed. Simplicity, efficiency and robust reliability have earned for this type of motor great popularity, so that now it provides two-thirds of the world's factory motive power. This is despite its inherent defects of operating at a low power factor and that hitherto, except at the expense of costly and inefficient additional windings, it has been virtually a fixed-speed machine tied to the frequency of its a.c. supply. The fixed-speed characteristic has, of course, been of advantage in some applications, but has precluded use of the squirrel-cage induction motor for traction purposes. While the new design developed at Bristol University does not apparently change the situation as far as traction is concerned, it does widen the field of application by enabling this type of motor to provide driving power at two alternative speeds, at choice up to a limiting ratio of 1½ to 1. Speed changing is achieved in a single stator winding by pole-amplitude modulation, the winding, which is arranged in a wave-like formation, being modulated by an acoustic signal. Since first experiments were made about three years ago a number of experimental motors of up to 5 h.p. has been built and tested at Bristol, with increasingly successful results. During the last two years seven much larger machines employing the same principles, the largest of 850 h.p., have been built by Associated Electrical Industries and the Lancashire Dynamo Company and these have done well.

Railway Wage Problem

THE reasonable attitude of Sir Brian Robertson towards the N.U.R.'s request for an immediate pay increase, coupled with the union's counsels of moderation, has impelled several of its district councils throughout the country to dissociate themselves from the London members' threat of a 24-hour strike on February 1. The reply to the request, promised for this week, had not been delivered at the time of writing. No doubt the B.T.C. chairman is consulting the Minister of Transport, as well as discussing the question with the other two railway unions, whose members have so far loyally abided by their executives' decision to await the Guillebaud Committee's recommendations. The railwaymen are considered to have a good case which would be jeopardised by unofficial strike action, if only in London; a rail strike, wherever it may happen and however brief, must cause upheaval—the mere threat discourages traffic which may be permanently lost. To satisfy the N.U.R. would mean departure from orthodoxy, but *The Times* seems to be reflecting Press opinion generally when it states "there are times when the need to deal justly with employees and to maintain the labour force has to take precedence over procedural considerations." It reminds its readers that railway wage rates had already fallen behind those in many other industries when the independent committee was decided upon some 18 months ago, and they have fallen further behind since. A correspondent in that newspaper airily remarks that "the railways must find their salvation by increasing their efficiency and in particular the productivity of their employees." Efficiency will increase with modernisation, but the scattered nature of railway employment makes higher productivity dependent essentially upon goodwill and co-operation from a contented staff. This, in turn, depends upon higher wages for which at the moment the Commission has not the wherewithal. The railways are State-owned, so the matter becomes a Government responsibility.

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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements.

Level Crossings

LEVEL crossings in this country have long been a source of expense to the railways as well as of irritation to road users. In all, there are some 19,700 private occupation crossings, at which during 1958 there were 59 collisions with road vehicles compared with 53 in 1957, and 4,380 guarded public level crossings, at which a high standard of safety is maintained but which nevertheless were the scene of 183 train accidents. In his annual report Brigadier C. A. Langley, Chief Inspecting Officer of Railways, stated that the increase of 23 in this latter class of accidents emphasised the problem of maintaining safety on account of manning difficulties; the cost of attendance at many of the crossings is also out of all proportion to the road traffic using them. Under its Act of 1957 the British Transport Commission received powers to replace manned gates at level crossings either by half-barriers worked automatically by the trains, or by full-length barriers operated from near the crossing or remotely from the signal-box. New provisional safety regulations for certain of these types of level crossing have been issued by the Ministry of Transport. The Commission plans to have a number of automatic half-barriers installed during the next two years as an experimental measure. The substitution of full-length barriers for gates will be undertaken as crossings become due for renewal and also at certain other crossings during the course of modernisation. These developments, which followed the report of a working party sent in 1956 by the Minister of Transport to study practice on the Continent, lend particular interest to a paper, of which a summary appeared in our December 19 issue, presented to the Institution of Railway Signal Engineers by Mr. E. G. Brentnall, signal engineer of the London Midland Region, and a member of the working party.

The Problem of Manning

MR. BRENTNALL confirmed that in recent years it had become increasingly difficult to obtain men of sufficient integrity, particularly under modern labour conditions when more relief men were required than formerly. Moreover, changing conditions had enhanced the disadvantages of the present system. The closing of crossings early enough to prevent trains being checked had always been necessary. Owing to the slow movement of the existing heavy gates crossings had usually to be closed for at least five minutes for a train's passage, and sometimes longer if two trains passed at close intervals. There had always been delays to road traffic, and while these were not so serious with the slow-moving traffic of the last century they caused considerable interference with the intense high-speed motor traffic of today. He referred to the working party's conclusions that Continental methods of operating level crossings would be suitable in Great Britain without prejudice to safety. Lifting barriers could be used in general to replace gates at most attended crossings, whilst automatic and remote operation could be adopted at selected places after trials. As regards the general question of safety the report had pointed out that the dangers to which pedestrians were exposed on the roads were at least as great as, and certainly more frequent than, at level crossings. An enlightened discussion followed the reading of the paper, to which a notable contribution was made by Colonel D. McMullen, an inspecting officer of the Ministry, who led the working party.

An Inspecting Officer's Views

"I AM often asked," remarked Colonel McMullen, "why we do not have short-length barriers at a manned or remotely operated crossing and full-length barriers at an automatic crossing." It was firmly agreed that at manned and remotely operated crossings the barriers must cover the full width of the road and that at automatically operated ones the barriers must cover only half the road. The reason was that the automatic crossing depended for its safety on the very fine timing between the fall of the barriers and the arrival of the fastest train; this acted as a deterrent to motorists who might be inclined to zigzag round the barriers. With manual operation it was quite impossible to secure so fine a timing; hence it was not safe in such cases to have half-barriers. It was equally essential to have short barriers at an automatic crossing so that a car could not get trapped. Automatic half-barrier crossings were of great advantage to the railway from an economic point of view, and also to road users because they reduced delays very considerably; they were favoured on Continental railways and were now being installed in parts of Asia. The provisional requirements which had been issued by the Ministry had been "produced by the working party"; some of the restrictions were considered onerous. Explaining these, Colonel McMullen pointed out that the 60 m.p.h. speed limit imposed on lines on which half-barriers were installed was because the faster the speed the greater the disparity in the time between the falling of the barriers and the arrival of a fast and a slow train. If half-barriers were put on a line over which trains moved at 90 m.p.h. the barriers would have to be down five seconds before their arrival. For a pick-up train, travelling at say 20 m.p.h., the interval would be about $1\frac{1}{4}$ minutes. If another 20 m.p.h. train occupied the controlling track circuits just before the pick-up cleared the crossing the barriers would then remain down for about $2\frac{1}{2}$ minutes; that might offer a temptation to impatient motorists to zigzag.

Need for Caution

THIS problem had been overcome in East Germany and the United States by measuring the speed of the train as it approached the crossing and adjusting the fall of the barriers accordingly, but it was not done in Holland, France and Western Germany. Moreover, speed measurement meant more apparatus, and the more the apparatus the more there was to go wrong; it was important to keep the equipment as simple as possible. He counselled caution. The Dutch had started with a small number of equipments which were thoroughly tested before they went ahead with their programme. "We too must learn to walk before we can run," he said, "but we may one day have an automatic half-barrier crossing like the Bilstraat crossing in Utrecht, and I would look forward to inspecting it." As regards safety, we prided ourselves on the fact that our level crossings were second to none. Half-barrier crossings admittedly would introduce some new risks, such as that of the zigzagging motorist. But the risk of a vehicle breaking down on a crossing would be not unlike that incurred on the 19,700 occupation and accommodation crossings; these were not manned and the occasions on which vehicles broke down or stalled were negligible. On the other hand, the half-barrier crossing eliminated the possibility of mistakes by crossing keeper or signalman such as had been the cause of accidents in the past. There had been surprisingly few accidents at half-barrier crossings on the Continent; on balance half-barrier crossings, with the equipment proposed, should be as safe as manned crossings.

NEWS SUMMARY

IN 1959 British European Airways made a profit of £2 million, representing an increase of 2,000 per cent on the figure for 1958. Passengers totalled 3.2 million. (See page 9.)

In an address to Europe House Sir Brian Robertson dealt with the work of the International Union of Railways (see page 3); in the latter part he covered political considerations, cross-Channel traffic and some aspects of the Channel Tunnel.

Another attempt is likely to be made to reach agreement in the I.A.T.A. traffic conferences on international air fares.

The North Eastern Region has its modernised goods depot at Stockton in service.

Sir William Black, chairman of A.E.C., Limited, was elected president of the Omnibus Society for 1960 on Tuesday of this week: he is the first manufacturer to be appointed to that office. Some notes on his presidential address appear on page 9. Besides dealing with bus design in relation to the contest between public and private transport he referred to the possibilities of the Bacon fuel cell, the Hovercraft and the Gyreacta.

London Transport announces the fifth stage of its trolleybus abandonment for the night of February 2-3; part conversion of West Ham and Walthamstow garages is intended with 58 additional and 46 RM-type buses working from them respectively.

CO-ORDINATION OF TRANSPORT

European Examples

*By Sir BRIAN ROBERTSON, Bart., G.C.B., G.B.E., Chairman, British Transport Commission **

TRANSPORT is a vast and complex subject. Vast, because it is the very warp and weft of any civilised community, not only for the transfer of goods between producer and consumer, but also for the movement of citizens. It is complex because transport has a variety of media—rail and road on land, vessels of various types on seas and inland navigations and aircraft over both land and sea. Moreover, there are forms of transport available to the public at large, and forms provided by individuals, or organisations, for their private use. I intend here to have regard to two of the objects of Europe House, namely:

(i) to give prominence to the unity already achieved by the European agencies and institutions;
(ii) to suggest, whenever possible, further practical and functional measures of European co-operation.

In so doing, I shall seek to convey to you the place of Great Britain in the organisation of European transport. But it is impossible to overlook one important point: Europe is a land mass and Great Britain is an island on the edge of the continent. Although the links that bind us with the rest of Europe grow closer each year, our insularity still remains an important factor in transport between Great Britain and the Continent. We are not Continental Europeans.

Rail

The railways still occupy a pre-eminent position in European international transport, and are energetic in taking steps to retain it. There are in existence a dozen or so organisations, some of government status and some purely railway, concerned with various phases of the subject, although latterly there has been some attempt made to co-ordinate and channel the work. The Swiss Government, in the nineteenth century, took the initiative in seeking standardisation, both in technical and commercial matters. The "Unité Technique," dating from 1882, sought to achieve standard government regulations in regard to gauge, clearances and construction details.

Fortunately, over most of Europe the rail gauge is 4 ft. 8½ in. (1.435 metres), corresponding to that established generally in this country. The principal exceptions are Russia, Spain, Portugal and Finland, which have broader gauges. The width and height of carriages and wagons on the standard-gauge line comply with what is known as the "Berne gauge." Unfortunately, in this respect, Great Britain is at a disadvantage in having pioneered railways; our loading gauge is smaller. This involves the construction of specially built wagons, vans and sleeping-cars for use on the train ferry services to and from this country. Incidentally, a break of railway gauge is not an insurmountable obstacle to the through movement of vehicles. Since the last war, Transfesa, a private Spanish company, has built a fleet of wagons with interchangeable axles, which are changed at the Franco-Spanish frontier. A through coach for passengers with couchette accommodation will work between the Hook of Holland and Moscow beginning next year, the bogies being changed at Brest-Litovsk.

Berne Conventions

Commercial conditions of railway transport have been determined by the Berne Conventions. That relating to merchandise was signed in 1890 and the one relating to passengers in 1911. Although most countries in Europe became parties to these conventions, the United Kingdom, for many years, stood aloof. Eminent counsel advised that there were numerous provisions manifestly conflicting with the principles of English law, some being founded on no principles whatsoever. With the resumption of cross-Channel traffic after the end of the last war, the main-line railway companies of Great Britain asked that the United Kingdom should accede to the conventions. The Government took part in meetings leading to revised texts, incorporating a few alterations, both conventions being signed in 1952 on behalf of Great Britain.

The conventions have not been implemented by Act of Parliament, so as to give them the force of law in this country, the Government having accepted an assurance that British Railways would implement them by contract. But conventions are primarily matters for governments. Most countries in Western Europe feel that it is important to make a clear-cut distinction between the functions of government and those of the railway administration; however, the further east one travels, the more blurred the line of distinction becomes!

International Union of Railways

The most important of the "railway" bodies is the International Union of Railways, which has its headquarters in Paris and is generally known as the "U.I.C." It was founded in 1922 and has, as its object, "the standardisation and improvement of the equipment and operating matters of the railways, with a view to international traffic." The status of the U.I.C. has been considerably enhanced since the end of the last war. The Organisation for European Economic Co-operation (O.E.E.C.) encouraged the re-shaping of the U.I.C., so that it became generally responsible for co-ordinating and representing the European railways. It directly controls various special bureaux, such as the Central Clearing House for traffic receipts in Brussels and the Office for Research and Experiments in Utrecht. Further, it co-ordinates the work of specialised organisations established at an earlier stage; for example, the passenger and goods timetable conferences.

It has further assisted directly, or indirectly, the development of several outstanding projects, such as:

(*a*) The EUROP wagon pool.
(*b*) The INTERFRIGO international company for refrigerated transport.
(*c*) The T.E.E. organisation responsible for the remarkable group of fast diesel train sets linking the principal cities of Western Europe.
(*d*) EUROFIMA, the society for financing railway stock.

There are now 50 member administrations of the U.I.C., including those on the fringe of the iron curtain, e.g. Eastern Germany, Bulgaria, Czechoslovakia, Poland and Rumania. Russia is not a member, although she participates in the timetable conferences. Although, primarily, the U.I.C. is a European organisation, the value and importance of its technical work have resulted in the railways of countries outside Europe seeking membership and being admitted; the list includes railways in Asia, Africa and America. A railwayman is a railwayman the world over, and it is certainly encouraging to see them sitting side by side in the meeting-rooms, with political ideologies left outside the door!

British Railways has been included in the membership since the inception of the U.I.C. This participation is, of course, essential on the traffic side; by reason of our physical insularity, it is useful on the technical side. Nevertheless, the exchange of ideas is useful and, if the Channel Tunnel, to which I shall refer later, becomes a reality, British Railways will certainly become a part of the railways of Europe. British participation in the work of the U.I.C. has always been welcome, perhaps for the reason that, on some questions, we can take a detached view and assist in hammering out acceptable solutions. Next year, a member of the British Transport Commission (Mr. John Ratter) will assume the chair of the U.I.C., in succession to Dr. Oeftering, president of the West German Railways.

This brief survey of the major international organisations for rail traffic would be incomplete without a mention of the Wagons-Lits Company. Insofar as concerns its widespread activities in the travel agency business, it is in commercial association with Thomas Cook and Son, Limited, now owned by the British Transport Commission. The Wagons-Lits Company operates as well a large fleet of sleeping and dining cars in many European countries and on through expresses. In the spirit of international goodwill that is now manifest, it is satisfactory to note that an "entente" has recently been established between the Wagons-Lits Company and the German Sleeping and Dining Car Company for co-operation and pooling of resources.

Road

Questions concerning the international circulation of road transport vehicles have been much to the fore in recent years. For commercial road transport, both passenger and freight, the problems remain complex and difficult. This is due basically to two reasons. In the first place commercial road transport, and particularly freight transport, is not organised to anything like the same extent as is rail transport. This stems naturally from the fact that road transport is more flexible than rail, but it is also due to the fact that road transport is in the hands of a large number of small operators, often with little cohesion between them. In this country there is a little more cohesion with road haulage and there are some large road haulage concerns other than British Road Services. But the picture is different on the Continent, particularly in France, and there is corresponding difficulty in getting agreement as to how matters might be improved.

The second basic reason is that the attitude of governments varies greatly. All governments control transport to some extent and there is no such thing as complete freedom of competition in the transport world. However, some countries control it very much more than others. They do so perhaps in order to compel a better balance between the various forms of transport, particularly road and rail, or they do it to ensure a higher degree of safety on the roads. This is particularly the feeling in Germany at the present time.

Conventions for Road Traffic

In spite of such difficulties a good deal of useful spadework has been done. The League of Nations made a contribution in this field. After the war in 1949 the Geneva Convention covered such matters as rules of the road, driving licences and registration. An annexed protocol established a uniform system of road direction and warning signs which is already in force in many countries, not of course fully in our own. The New York Convention made under the United Nations in 1955 dealt with customs facilities for touring and the temporary importation of private motor vehicles. In 1959 a very important Customs Convention was signed which has recently been ratified by the United Kingdom. This set up a system of special carnets for freight carrying vehicles. These carnets serve as a bond and the carrier is not subject to payment or deposit of duties en route. The customs will normally inspect goods in the countries of origin and destination. Since January 7 of this year British hauliers, for example, have been able to go under this system to 10 countries in Western Europe.

There still remains a great deal to do to co-ordinate regulations, to simplify them and to remove restrictions on the international transit of commercial vehicles. Work continues particularly under the aegis of the Economic Commission for Europe. In the meanwhile, despite procedural difficulties, the traffic is already beginning to flow more freely and in greater volume. For example, inclusive tours by coach are still theoretically subject to negotiation with each country concerned. In practice the difficulties melt away and that is, of course, because the countries concerned are only too anxious to stimulate tourism. Our own British Road Services is now well established in the business via the Tilbury—Antwerp ferry route. International co-operation in regard to road construction is developing.

Inland Waterways

Some of the earliest transport conventions relate to inland waterways, that dealing with the Danube going back as far as 1856 and that for the Rhine to 1868. They provided for freedom of navigation to vessels of the interested states and various measures for maintenance and policing. Connected with the main rivers is a vast system of wide canals; these are maintained as a public service, and the revenue from tolls is not expected to show a direct return on the investment. Some 375 million tons of traffic are carried each year on the inland waterways of Belgium, France, Western Germany and Holland and of this some 195 million tons—over half of the total—are international in character. The Rhine waterway, in particular, has a considerable influence on rates and the routeing of traffic by land transport in Western Europe.

(*To be continued*)

* Abstract of an address to Europe House.

TURNOVER, EXPORTS AND PROFITS

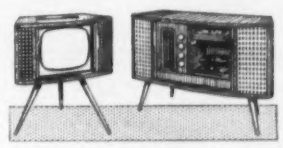
Mr. E. R. Lewis (Chairman) at the Annual General Meeting of The Decca Record Company Limited:

Balance from Trading Account for the year to 31st Mareh, 1959, amounted to £3,305,313, an increase over the previous year of £352,774. The net profit amounted to £1,031,205, an increase of £100,221. Consolidated turnover at £21,800,000 was £850,000 greater than that of the previous year and the highest in the Company's history. Exports reached the record total of £5,860,000, including £1,380,000 to the U.S.A. and Canada. On the record side of the business, which accounted for rather more than 50% of our total turnover, we more than maintained our position. For the Decca Navigator the year was one of considerable achievement and Decca Radar continued to progress.

Radar and Navigational Aids

CURRENT YEAR

On the record side we anticipate another excellent year's trading. The demand for television has been sustained at a high level and sales of stereo radiogramophones show a marked increase. The outcome of the current year's activities on the Navigator side will be satisfactory and will represent a substantial contribution to the profits of the Group. Our Decca Radar subsidiary has now been in operation for ten years. It too made a substantial contribution towards last year's Group profits and we anticipate a similar contribution during the current year. Group turnover since 31st March last has increased substantially and subject only to unforeseen circumstances we look forward with confidence to considerably improved results for this year's trading. The report was adopted, the total dividend of 2/- for the year approved, and a first interim dividend of 4d. per share less tax (against 3d.) was declared.



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We also supply "SUPERFLEX" roofing specially suitable for motor vehicles, such as Caravans, Pantechnicons, Delivery Vans and other road transport. It is a light-weight plastic-coated cloth capable of withstanding bad weather and adverse climatic conditions for many years, and can be supplied in widths up to 108".

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LORRY—BUS—COACH

New User Sought: 12 Vehicles Lost

FOLLOWING a public inquiry on a series of licence applications, the West Midland area Licensing Authority, Mr. W. P. James, has refused 12 vehicles on A-licences sought by Shephard and Hough, Limited, of Earlswood, near Burton-on-Trent. The company sought A-licences for seven vehicles at Earlswood, two of which were previously based at Stirchley, with a new and wider normal user; and nine vehicles at Evesham, previously based at Burton-on-Trent, again with a wider user. It was admitted that from the beginning of 1957 the latter nine vehicles, together with seven vehicles at Earlswood or Stirchley, had been transferred to Evesham on fruit and vegetable traffic because of a decline in beer traffic from Burton and that nothing was done to regularise the position by declaring a new normal user. In August, 1958, it was warned by the Road Passenger and Transport Association that it was in serious jeopardy but applications for new licences were not lodged until August, 1959, because, it was stated, the accounting system was previously not capable of producing the necessary documentary evidence of vehicle earnings.

Mr. James says that these events do not justify a grant. From the recent sale, for financial reasons, of eight SA-licensed vehicles (seven SA vehicles had been based at Evesham) it seemed that the company sought the best of both worlds—the cash from the sales and A-licences at Evesham to replace the vehicles. But two or three of the SA vehicles disposed of were still available for work in that area. On evidence, only part of the Evesham application, four vehicles, is granted, the remaining five being refused. He prefers the evidence of the customer, British Canners, Limited, of Hereford and Ledbury, on the number of vehicles needed to that of the applicant, mainly because customer evidence is given priority by statute. The applications in respect of Earlswood (seven vehicles) are refused because the evidence is insufficient. As a penalty for the irregular operation from Evesham the four vehicles are authorised only from May 1 onwards.

London Timber Hauliers

TIMBER hauliers in London have formed a committee under the chairmanship of Mr. A. E. Drain, of Deptford, chairman of the Metropolitan and South Eastern area of the Road Haulage Association. One of the objects of the committee is to establish close liaison with the timber trade in order to iron out many of the difficulties among timber traders and hauliers. Among these difficulties are delays at docks and the classification of loads.

Vehicle Trains on U.S. Toll Roads

TRIAL operation of "double bottoms" (tractor—semi-trailer—trailer combinations) on the Ohio Turnpike and the Northern Indiana Toll Road was scheduled to begin on January 18. By special permit, carriers will be authorised to operate experimentally vehicle trains with a gross laden weight of 57 tons and up to 98 ft. long on these two toll roads, which provide a 403-mile route from Akron to Chicago. Ohio will enforce a minimum speed of 25 m.p.h. on grades, none of which exceed 2 per cent, and Indiana a minimum of 25 m.p.h. on grades and 40 m.p.h. on the level. Temporary marshalling sites are available for the coupling and uncoupling of vehicle trains. New York and Massachusetts granted permanent authority for "double bottoms" on certain toll roads last July.

Pension and £500 on Retirement

DISTRIBUTING long-service awards to five employees with 25 years records, Mr. J. H. G. Barber, managing director of Victory Transport, Limited, Rownhams, near Southampton, announced that in addition to the normal staff pension scheme, the company had taken out on behalf of these five employees insurance policies which would enable them to receive a sum of about £500 each on retirement.

Southport Corporation Transport Department has been trying a Leyland Atlantean demonstration bus

Parcels Carrier in Expansion Bid

APPLICATION has been made by Collins Express Parcel Service, Limited, of Walsall Wood, for an A-licence for 18 vehicles (54½ tons) and a B-licence for one vehicle in substitution for a similar number of vehicles at present authorised to Hunts of Studley, Limited, whose headquarters are near Redditch. Collins intends to continue at the same base. Hunts of Studley acquired the old-established Birmingham carrier, Marshall Son and Reading, Limited, of West Heath (formerly J. J. Marshall and Son) in 1956. This business developed from a local operation to one with a delivery area extending westward to Hereford, Leominster and Ludlow and southward to Gloucester, Cheltenham, Chipping Campden and Shipston-on-Stour.

Collins is applying for a normal user "collection and delivery of parcels and smalls; mainly central Midlands, including counties of Gloucestershire and Herefordshire." The directors of Collins, which was recently granted an additional six vehicles, are Mr. W. A. and Mr. G. Millard. The fleet at present numbers some 90 vehicles. The deletion of the 19 vehicles from the Hunt licence would leave that company with a small number of vehicles, including furniture vans.

London Trolleybuses: Next Stage

FIVE more trolleybus routes in east or north-east London are due to be replaced by Routemaster buses when stage V of the London Transport trolleybus abandonment programme is carried through on February 3. An advance statement says that the route changes are as follows:

Trolleybus route 557 will be replaced by bus 257, extended on weekdays from Chingford Mount to Chingford (Royal Forest Hotel) via the route of 102, and from Liverpool Street to London Bridge (except on Monday-Friday evenings), and by weekday bus route 256, Chingford Mount—Moorgate (Finsbury Square), via Higham Hill, Chatsworth Road and Powerscroft Road, Clapton, and Shoreditch (which will be the terminus on Saturday p.m.). Trolleybus route 669 will be replaced by bus 69, Stratford—North Woolwich (Free Ferry) (unchanged). Trolleybus route 685 will be replaced by bus 58, Walthamstow (Crooked Billet)—Canning Town, extended at peak hours to Silvertown or North Woolwich (unchanged). Trolleybus routes 689 and 690 will be replaced by bus 272, Stratford—East Ham (White Horse), via Plashet Grove, extended at Monday-Friday peak to Royal Albert Dock, and by bus 162, Stratford—Little Heath, via Upton Park, Barking and Goodmayes (the route of 62). In consequence of this, routes 62 and 62A will be withdrawn between Little Heath and Barking. Route 62 (weekdays) will operate Barking Broadway—Barkingside or Gants Hill or Ilford and 62A (Sunday) will operate Barking (London Road)—Chigwell Row. Both will be diverted between Barking and Rippleside via Longbridge Road and Upney Lane.

Walthamstow Garage will receive 46 Routemasters to operate alongside 44 trolleybuses pending stage VI—it will eventually have capacity for 142 buses—and West Ham a further 58, giving it 73 buses and leaving 64 trolleybuses, again until stage VI sees the last of the remaining West Ham area trolleybuses, routes 687, 697 and 699 between Chingford and Royal Victoria Dock.

Pink Zone Deliveries: Views Sought

MEMBER firms of the Traders' Road Transport Association are being asked to report on their experiences in collecting or distributing goods in the Central London "Pink Zone." Certain stores and business premises have expressed themselves willing to accept deliveries before 9 a.m. and the T.R.T.A. wants to know whether advantage was taken of this facility and also the names of other firms making separate arrangements.

Cash Delivery Van Service

IN association with Wells Fargo Armored Service Company of New York, Thomas de la Rue and Co., Limited, has formed an armoured van service for operations first in London and then in other centres. Named Security Express, Limited, it will deliver payroll money and collect cash on a daily basis for deposit at the bank. No details have been given of the cost, nor of the security precautions, but it appears that the first van in service is a Thames Trader with standard (separate) cab and box body.

Dundee Lags in Meat Transport

WITHDRAWAL of closed vans for the delivery of butchers' meat in Dundee was described as a retrograde step by Mr. Alex. Robertson, deputy Scottish area Licensing Authority, in Dundee. Before him was an application by James Muir and Sons, Dundee, for a B-licence for two vehicles to carry meat and butchers' sundries. The application was opposed by J. Findlay and Co. (Contractors). Limited, which formerly supplied a van service, but withdrew it, alleging lack of support from local butchers. Mr. Thomas N. Craig, president of Dundee and District Master Butchers' Association, representing over 90 per cent of local butchers, said that in previous negotiations with Findlay it was indicated that unless Findlay got a better support the rates would have to go up, otherwise he would have to withdraw the service. On November 4 United Carriers, Limited, gave notice of Findlay's intention, it was stated.

Mr. Craig said he did not think it was the intention of the new food regulations that meat should be carried in closed vans, provided the vans or lorries were passed by the sanitary authorities. To a degree the method now adopted for the carriage of meat in Dundee by the applicants was reverting back to what it was years ago. But Muir had had the vehicles examined by the sanitary authorities, and, he claimed, they came up to their requirements. After the objections had been withdrawn Mr. Robertson granted the application.

Bus and Coach Developments

E. I. Peake, Pontnewnydd, proposes revision of his local services at Pontypool.

Maidstone and District Motor Services, Limited, this year proposes a new South Wales tour.

Jeffways and Pilot Coaches, Limited, High Wycombe, is applying for licences held by Pilot Coaches, Limited.

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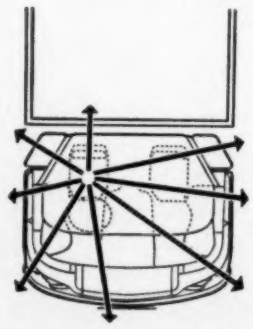

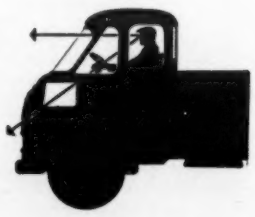

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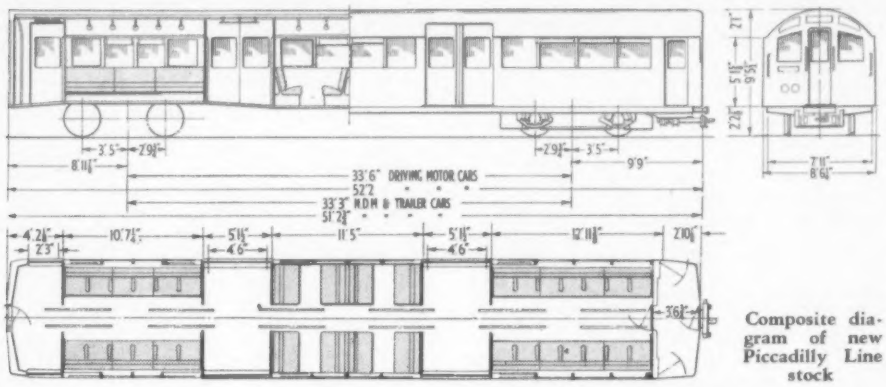
PICCADILLY LINE

New Trains for London Transport by Metropolitan-Cammell*

BRAKE hanger assemblies on the new Piccadilly Line stock built for London Transport by Metropolitan-Cammell Carriage and Wagon Co., Limited, have been provided with side guiding plates thus allowing the elimination of the flanged shell. The absence of this shell greatly facilitates reblocking. Account has been taken of the displacement of the applied force on the brake block so as to reduce taper wear.

Positive and negative radial-type collector shoes are fitted to all motored bogies. The positive shoes on each side are carried on laminated wooden beams attached to the axleboxes. The negative shoe beam is supported from the bogie frame and compensation for height and load variations is achieved by a cross shaft carrying a compensating lever at each end which rests on an adjustable bracket attached to the positive beam. Provision has been made for isolating all



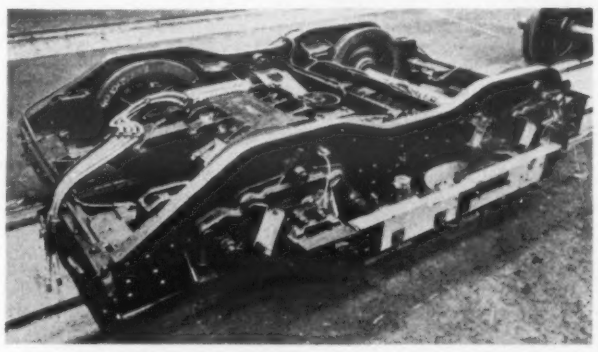
Composite diagram of new Piccadilly Line stock

shoes on each bogie from the current rails from inside the car by a handle which can be inserted in a socket attached to the cross shaft.

Body Construction

The general design is similar to earlier tube stock built in 1938 with the exception that the body is now sheathed in unpainted light alloy instead of steel. Experience gained with prototypes and with the latest shallow stock, one train of which has been in service since 1952 in the unpainted condition, has prompted the use of light alloy. Body sides and roofs are to British Standard No. 1470, N.S.5 in the quarter-hard condition. Other items, including car ends and canopies, are in either the same material in the annealed condition or in another non-heat-treatable alloy. Although some local use is made of aluminium alloy extrusions in the roof and side-light pillar construction, the main body frame is constructed with welding or riveting of light steel pressings and sections. Barium chromate jointing compound is applied as protection against electrolytic corrosion at joints between aluminium and steel components.

An alteration has been made to the interior layout in that the seating in the centre bay has been rearranged with four double transverse seats in facing pairs at each side of the gangway instead of the previous arrangement of four double transverse seats arranged with the centre two facing each other and the outer two facing the backs of the centre seats. This new arrangement gives improved access to seats and doorways.



Bogie of Metropolitan-Cammell stock for Piccadilly Line

Doorways

Each car has two 4 ft. 6 in. double doorways on both sides, and single doors 2 ft. 3 in. wide on both sides at both ends. In driving motor cars the sliding doors at one end are omitted as the driving compartment takes up the space normally occupied by the doors and vestibule. The doors are air-operated, are guided at the top, and run on wheels on a replaceable flat steel track set in an alloy sill casting. Lateral location is by non-metallic side guiding slippers concealed inside the door pockets, running on replaceable strips attached to the doors.

The interior colour scheme has departed from the conventional red and green upholstery and matching paintwork, and has been replaced by a maroon and grey moquette with dove grey paint below the waist rail. Interior finish is timber with the exception of the end panelling, which is plastic-faced plywood.

Motors

Each motor car is provided with two self-ventilated series-wound traction motors, each having a continuous rating of 80 h.p. at 575 volts 116 amps. at a field strength of 66 per cent. Following successful small-scale trials with silicone insulated armatures rewound in the main overhaul works at Acton, a number of the new motors will have silicone insulation in order to gain large-scale service experience. Traction control gear is the well-tried electro-pneumatic camshaft equipment developed from a prewar design; it is housed in one case which can be readily removed complete if necessary. Solderless crimped terminals are being introduced for both power and control wiring.

The master controller has three positions—shunt, series, and normal running. The series position of the control equipment is reached through nine steps of resistance, automatically controlled by an accelerating relay. The normal running position is attained through nine further steps of resistance and one step of field shunting, all again under control of the accelerating relay. This position produces the lower speed train characteristic. The driver, by raising a flag switch, can initiate a further automatic step of field shunting under the control of a field shunt relay, which results in a higher speed train characteristic. No-volt and low-current protection is also provided by appropriate relays. The main resistors are of the lightweight coiled strip type.

Auxiliaries

Control and auxiliary circuits are supplied at 50 volts d.c. from a motor-generator alternator which also supplies 115 volts a.c. at 850 cycles for main lighting purposes. Hitherto the a.c. supply has been generated by a pole face winding, but this arrangement has been found to be inherently noisy and the new machines will have a separate alternator mounted on the end of the common shaft. The motor generator floats permanently across a 23-cell lead-acid battery which provides a supply for emergency use.

The normal 50-volt filament lighting on earlier tube stock has been replaced by fluorescent lighting. The 5-ft. tubes are arranged in two rows of six placed in the centre of the ceiling. The tubes are rated at 80 watts but are under-run to give the required illumination level. The resonant starting method is used. In the event of failure, emergency lighting is supplied by four battery-fed 45-watt filament lamps placed at the ends of the car.

Heating is provided by wire-wound electric heaters mounted behind grilles in the seat risers. There are 12 heaters per car, giving a heating capacity of approximately 4 kW. These are fed from the 600-volt d.c. supply connected in two series circuits of six heaters per circuit, and controlled from the guard's panel. The driving motor cars are fitted with speedometers, which consist of a generator driven from a traction motor armature shaft and connected to an instrument in the driver's cab. A variable resistance is provided to compensate for variations in wheel diameter.

Performance

The speed characteristics of this stock have been arranged to conform with existing stock, but provision has been made for improvement at a later date. The motors are designed to run over sections of high traffic density with some degree of field weakening, but the speed characteristics of the train conform with those of a train of existing stock on full field. The motors, therefore, reach the full field position at lower speed than on earlier tube stock.

This reduces the energy lost in the resistances, the duration of the maximum demand period at start-

1012 A end driving motor	–	2012 trailer	–	9013 non-driving motor	–	1013 D end driving motor	+	1014 A end driving motor	–	2014 trailer	–	1015 D end driving motor
Four-car unit semi permanently coupled								Three-car unit semi-permanently coupled				

Prototypes (eventually) ..	1000	–	2000	–	9001	–	1001	+	1002	–	2002	–	1003
	4		4		5		5		6		6		7
	8		8		9		9		10		10		11
Production	12		12		13		13		14		14		15
							etc., up to						
	1312	–	2312	–	9313	–	1313	+	1314	–	2314	–	1315

insulated armatures rewound in the main overhaul works at Acton, a number of the new motors will have silicone insulation in order to gain large-scale service experience. Traction control gear is the well-tried electro-pneumatic camshaft equipment developed from a prewar design; it is housed in one case which can be readily removed complete if necessary. Solderless crimped terminals are being introduced for both power and control wiring.

The master controller has three positions—shunt, series, and normal running. The series position of the control equipment is reached through nine steps of resistance, automatically controlled by an accelerating relay. The normal running position is attained through nine further steps of resistance and one step of field shunting, all again under ing, and the size and weight of the starting resistances. Two running characteristics are provided so that with the first stage of field weakening there is a low maximum speed for use in the central area of London where the traffic density is at its highest. The second, higher speed, characteristic is used for the outer area where the headway is greater.

Formation and Fleet Numbers

With the introduction of the new rolling stock on the Piccadilly Line, London Transport is reverting to a system of car numbering using only four digits instead of the five or six employed for cars introduced since 1936. The fleet numbers of the cars in the first of the new trains are tabulated.

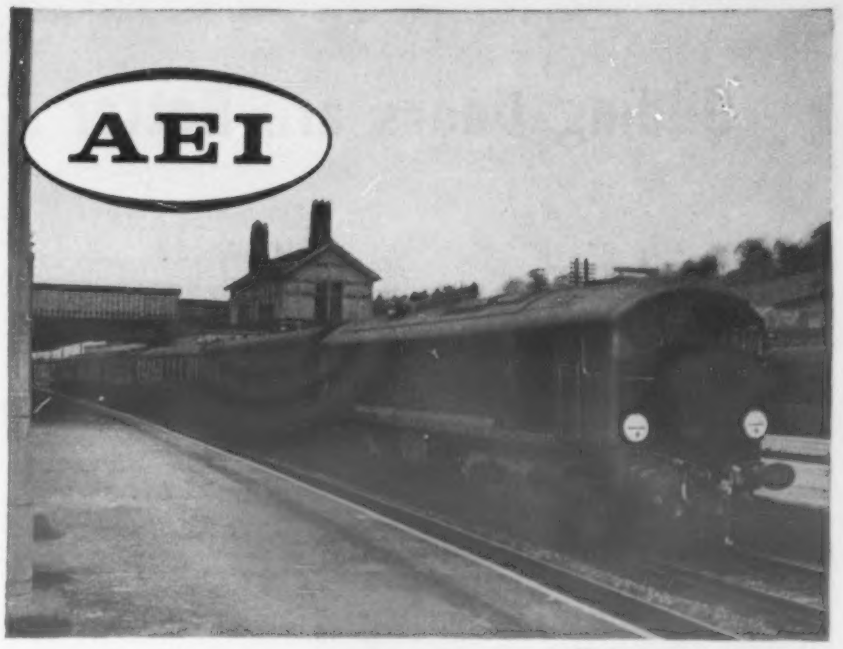
Numbers have been left at the beginning of this series for three prototype 1956 trains, which will eventually be modified to be interchangeable with the new 1959 stock and renumbered.

In the whole series A end driving cars will be numbered from 1000 to 1314 (even numbers only), D end driving cars 1001 to 1315 (odd numbers only), trailer cars 2000 to 2314 (even numbers only), and non-driving motor cars 9001 to 9313 (alternate odd numbers only). In normal circumstances cars will be semi-permanently coupled in units so that the number of the trailer car is 1,000

(*Continued on page* 13)

* First portion appeared January 23.

AEI



The Diesel-electric locomotive standing in Chinley station.

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The photograph shows one of the 20 Co-Bo Diesel Electric Locomotives supplied by the AEI Traction Division to British Railways—one of the many orders received in connection with the British Transport Commission's modernisation programme.

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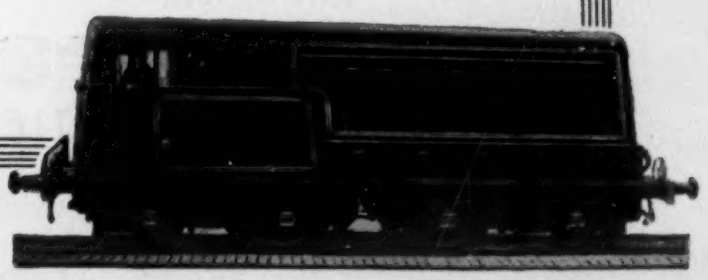

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South Africa—Westinghouse Brake & Signal Co. S.A. (Pty.) Ltd., Johannesburg
Agents:—Bellamy & Lambie, Johannesburg

LETTERS TO THE EDITOR

The Great Central Main Line

The Editor is always glad to receive letters from readers on subjects germane to the transport industry, but these should be written as concisely as possible. The opinions expressed therein must not, however, be regarded as having editorial endorsement. Where correspondents desire to use a nom-de-plume it is essential that the Editor should be informed of the name and full address of the writer as indication of good faith.

SIR,—I have read with great interest the analysis of the value of the Great Central main line published in your issue of January 2. As part of it seems to be an apologia on behalf of British Railways for an act of "butchery" rather than skilful surgery whereby the best features of the Great Central and Midland services might have been united, I might make the following comments:

It is difficult to see how a large proportion of the heavy freight traffic between the Midlands and London can be concentrated on the G.C. line for the very reason you have advanced in explaining why passenger trains diverted by the Euston line electrification could not use this route—the heavy congestion of the Amersham and High Wycombe sections near London. In addition, adequate freight and mineral depots do not exist at the London end of the line. British Railways have also stated that the G.C. line will also be busy in the future with freight traffic diverted by reason of the Euston electrification. As the former is notorious for its lack of physical connections with other lines, particularly the L.N.W., how is this to be done? It seems odd to advocate diverting freight traffic from the Midland line as this route is unique among lines to London in having separate freight tracks southwards for the 72 miles from Kettering, while north of that point an elaborate system of loop lines extends well into the West Riding.

Where Are the Economies?

You state that substantial economies have been brought about by withdrawal of the G.C. passenger expresses. Is this really so? In place of the single service provided, no fewer than four are now in existence. First, the new steam semi-fasts between Marylebone and Nottingham; second and third the new diesel services over the longer, slower and more congested Midland routes between Leicester and Nottingham and Nottingham and Sheffield; and fourth an electric service between Sheffield and Manchester—the truncated remains, in fact, of the Marylebone—Manchester expresses. How much then has been saved in rolling stock and manpower? The situation becomes even more peculiar when one considers the immense stations, such as Leicester Central, Nottingham Victoria and even Sheffield Victoria, which have to be kept open and maintained for the sake of a handful of trains a day.

Surprising, too, is the lack of liaison between the London Midland and Eastern Regions over these changes. The sole through service between Sheffield Victoria and London is now that over the G.N. line (which we are told is to be *the* route to the capital under the modernisation plan) and which comprises two limited accommodation, supplementary fare trains each way, with no service at all on Saturdays and Sundays. A good way to promote the future of this route! One would have thought that at least the *South Yorkshireman* could have been diverted instead of being replaced by the peculiar new service to St. Pancras, which as far as Halifax is concerned duplicates, but is handsomely beaten in time, by the only other through service of the day leaving some 30 min. later for Kings Cross.

Intercity Service

Instead of these cumbersome expedients, surely it would have been better to have provided over the G.C. line a smartly timed and punctually operated service of diesel-operated buffet car trains, maintained, of course, as an *intercity* facility and not as a competitive service to that from St. Pancras. London—Harrow—Amersham—Aylesbury—Brackley—Rugby—Lutterworth—Leicester — Loughborough — Nottingham — Hucknall — Chesterfield—Sheffield—Penistone—Manchester—where else could so many towns be linked up by one train service over a modern main line? This does not sound as empty of traffic promise as the Gobi Desert, yet nothing has been done to encourage patronage—in sad contrast to the benefits lavished by British Railways on other services, particularly branch lines, of far less potential value.

However, the principal benefit the G.C. line could confer would be its integration with the Midland route. The latter no longer competes for through London—Scotland or London—West Riding passenger traffic and its future role would seem to give it the rail monopoly between London, Leicester, Nottingham and, possibly, Sheffield, and between the Midlands, West Riding and Scotland. As a main line it suffers, however, from several serious disadvantages, Leicester and Nottingham are on different routes and have to be served by different through trains between St. Pancras and the North. Between Trent and Chesterfield the line is infested with pitfall restriction and heavily congested with freight traffic. On the Kettering—Nottingham section, beautifully graded and ideal for heavy coal trains, the necessity for keeping paths open for high-speed passenger trains and the absence of refuge loops seriously restricts the usefulness of this line. At Nottingham the Midland station is remotely situated—unlike Victoria, which is in the heart of the city—while the exit to the North via Lenton and Trowell is steep, circuitous, sharply curved and cuts across the heavy flow of coal traffic, first down the Leen valley and then down the Erewash valley.

A Simple Diversion

All these disadvantages would be overcome, however, if trains from St. Pancras to the North could be diverted over the G.C. line between Leicester and Chesterfield, where they would regain their present route. This would be no costly or difficult task. Just before Leicester London Road is Knighton South Junction, which forms one arm of the triangular junction by which the Burton branch leaves the main Midland line on the down side and takes a north-westerly course to pass under the adjacent G.C. main line some half-mile further on. All that would be needed here would be a short east-to-north curve to connect the two lines. This would give access to Leicester Central and Nottingham Victoria and the G.C. route would be followed northward through Hucknall, Heath and Chesterfield loop, which passes under the Midland line south of the town and recrosses it to the north. At the latter point another short connection would be needed to regain the Midland line in the direction of Sheffield Midland. The cost of making these two links would be very small and they would open up a first-class route from St. Pancras to the North via Kettering, Leicester Central, Nottingham Victoria and Sheffield Midland. The distance would be about one mile longer than via the shortest existing route via Trent. Such a combination of the best features or two erstwhile rival routes has had historical parallel in the Margate—Ramsgate area of the old Southern Railway and, abroad, with certain competitive services of the C.P.R. and C.N.R.—Yours faithfully,

JOHN D. HEWITT.

36 *Gledstanes Road,*
London, W.14.

SIR,—After all the ill-informed, and at times rather childish, criticism which has been levelled at the decision to withdraw the express passenger services from the former Great Central main line, it was refreshing to read your excellent and well-balanced account in your issue of January 2.

Some railway historians have long held the retrospective view that Parliament made a serious error in sanctioning this railway at so late a date—1893. Its 98 miles cost nearly £8 million and, in absence of any statistics, the general impression is that the receipts were never sufficient to pay any dividend on this capital outlay. In short, it has always been a "luxury route," heavily subsidised by more profitable sections. Present conditions make it inevitable that we must forego the luxury of so many lightly loaded trains and the excellent reputation which the Great Central established for cleanliness, speed and punctuality. We at Rugby will suffer most on the last two counts, since our alternative route to London, though theoretically faster, is in practice much inferior.

It is, however, regrettable that the all-year-round through services to and from South Wales and the West of England should have gradually disappeared. The rot set in during L.N.E.R. days and has spread slowly ever since, leaving two miserable glorified night parcels trains each way between York, Sheffield and Swindon. The Transport Commission seems to be deluded into thinking that everyone can, or wishes to, travel via London, or perhaps Birmingham. The result is, one is compelled to take to the road to reach Oxford, Bath or Bristol; all three towns can be reached by a moderate driver in far less than rail time. Only this aspect makes me sigh for the good old G.C. days when we had comfortable through services via Banbury!—Yours faithfully,

C. R. CLINKER.

9 *Regent Place,*
Rugby,
Warwickshire.

Extend the Bakerloo

SIR,—It has often been suggested that the London Transport Bakerloo Line should be extended to Camberwell, but I cannot recall seeing the suggestion that this could be done at far less expense by bringing the tube lines to the surface along the Walworth Road section of the S.R. Holborn Viaduct lines, and using these lines for an extension to Camberwell, Loughborough Junction, Denmark Hill, Peckham Rye, and beyond to Orpington via Catford, and to Crayford and Barnehurst via the Dartford loop and Bexleyheath routes. The routes out of Holborn Viaduct are not at present used to capacity, and the South-East London area could use a "tube" line, avoiding the London Bridge bottleneck.

Alternatively, a connection to this route could be provided from Kennington on the Northern Line, where at present a number of trains from the Charing Cross route terminate. Other advantages would be a reduction of bus services, and traffic congestion at Camberwell and Elephant.—Yours faithfully,

C. A. COWLAND.

34 *Collier Close, Moor Lane,*
Maidenhead, Berks.

[One could hazard a guess that the Southern Region at no distant date will need all the track capacity it can find for its own longer-distance services. The use of tube trains on main-line railways is a mixed blessing especially if compromise platform heights are involved through simultaneous use by both types of train. It is also perhaps worth remembering that seven-car tube trains would be the maximum, giving perhaps 336 seats, whereas the S.R. 10-car suburban train offers 958 seats. —Editor, MODERN TRANSPORT.]

The Viking Line

SIR,—The topicality of the proposed new London tube railway prompts me to revive a suggestion I made a little time ago.

"Victoria Line" is a term which would have shocked Euclid. How can a line be defined by reference to one point only? Just as the Bakerloo Line derives its names from two points—Baker Street and Waterloo—why should not the new tube railway be named the Viking Line—Victoria and Kings Cross?—Yours faithfully,

J. P. GAUDIN.

Upton House,
Hertford.

Rail Fares Structure

SIR,—If Mr. Rolfe, whose letter appeared in your issue of December 26, refers to the Southern Region's handbill CX1221, he will see that the day return ticket to Bournemouth Central on Tuesday, Wednesday and Thursday is available by all trains up to and including the 11.30 a.m., and is available to return by any train. On the other hand, the Sunday excursion costing 15s. is only available by the 9.33 a.m. from Waterloo and the 6.8 p.m. from Bournemouth Central. The former calls at Wimbledon, Surbiton and Woking, and serves Southampton Central, Brockenhurst, New Milton, Bournemouth Central and West. Excursion tickets at appropriate fares are issued in connection with this train from a large number of suburban and outer suburban stations, including all those from Vauxhall to Brookwood. Evidently there is a considerable volume of traffic by this train, as excursions to Winchester City, and from that station to Southampton Central—Bournemouth West are limited to the 9.30 a.m. from Waterloo.

Charging a higher fare for greater facilities and a longer stay at the distant end is a practice of very long standing—known at one time as "day" and "half-day" excursions.—Yours faithfully,

G. T. MOODY.

74 *Claverdale Road,*
Tulse Hill,
London, S.W.2.

BRUSSELS MOTOR SHOW

*Commercial Vehicles and Components**

TWO Swedish makers, Scania-Vabis and Volvo, have taken the opportunity to introduce their latest developments at Brussels. The new Scania-Vabis L55 7-ton chassis supersedes the L51 range of 6-tonners. Powered by a new 120-b.h.p. engine, the chassis is available in six wheelbase variations and is also to be produced in a six-wheeled version with a payload rating of 10 tons. Also shown is the Capitol bus chassis with a transverse 150-b.h.p. engine at the rear. Volvo, whose striking display involved digging a pit into the floor of the exhibition hall, reveals an entirely new automatic transmission initially intended for the B655 p.s.v. chassis, although wider applications are envisaged.

Volvomatic Transmission

Named Volvomatic, the transmission consists of a torque converter and a single set of planetary gears arranged to provide three speeds. The B655 chassis exhibited is, however, equipped with a semi-automatic Coventry-built Self-Changing Gears transmission, which is one of several alternatives offered. This chassis is fitted with Firestone air bellows in conjunction with conventional semi-elliptic springs on front and rear axles and an unusual torsion bar stabiliser is provided behind the rear suspension.

The preoccupation of F.N., or to give the full title Fabrique Nationale D'Armes De Guerre, with military requirements may have been partly responsible for the obvious reluctance to provide us with more than the barest details of the prototype rear-engined bus shown at Brussels. There has been no attempt to give this mechanically unorthodox vehicle attractive styling, which resembles older F.N. trolleybuses. Two Perkins six-cylinder diesel engines are arranged transversely in an Atlantean-like boot at the rear. The engines are at different levels to enable their output gearing to be taken to the Self-Changing Gears transmission. Two radiators are used, one between the power units and one on the offside of the boot, where a large grille is fitted. The gear selector lever in the cab of this one-man bus has been incorporated in the dash panel, which also carries the usual door controls and passengers' stop bell. (And the little hammer with which to effect a spectacular "sortie de secours"!) The vehicle appears to be of chassisless construction and can carry up to 70 passengers. Pirelli air suspension has been adopted for the prototype but conventional springing can be fitted to future vehicles, which will also be slightly longer to carry up to 86 passengers.

Belgian coach bodywork has progressed from the flamboyant extravagance of a few years ago to a stage where refinement is achieved by clean, straight lines with few embellishments. One of the largest coach and commercial vehicle builders in the country, Van Hool, whose output now approaches 600 bodies for all purposes per annum, has a striking line-up of its Fiat-engined buses and coaches, which are built largely of standardised parts and components.

The choice for the operator is a wide one, ranging from a 24-seat vehicle with 110-b.h.p. underfloor engine to a 57-seater with 150-b.h.p. engine and air suspension. The latter engine, both in its vertical or horizontal version can be supplied with a Holset supercharger to increase its power by 20 per cent. The strictly functional principles of Van Hool construction are also applied to bodywork on other manufacturers' chassis and examples can be seen on the O.M., Bussing, Volvo, and Mercedes stands.

Gangway seats, which featured in Belgian coaches until recently, have now been prohibited by law. There is still a considerable demand for the large forward-engined vehicle for types of services on which they have been replaced by the underfloor-engined coach in the U.K. All p.s.vs. fitted with flashing indicators fore and aft now also possess small repeaters recessed into the side of the body to warn traffic abreast of the driver's intention to turn. In the section devoted to special goods bodywork and trailers there are several interesting mobile shops. The conception of a mobile shop differs completely from that in the U.K., the Belgian designs usually following the Swiss Migros pattern in which, upon arrival at a stopping place, the side panels are opened upwards to reveal a long counter and to form a protective canopy for the customer.

Structural Plastics

One of the few instances of structural plastics in goods bodywork was noted in a trailer shop of the above pattern exhibited by Baetens. Here the side panels-cum-canopies were made of a yellow plastics honeycomb sandwiched between translucent glass-fibre sheets. The thickness of the metal-framed panels was approximately 1¼ in. Apart from the usefulness of admitting plenty of light, the material was extremely attractive. Another mobile shop shown by W. Muylder had once been a Bedford four-wheel drive vehicle. By cutting the chassis, inserting a new low frame and using the front-wheel drive portion only, the bodybuilder has been able to obtain a body floor height of only 9½ in. The same counter layout as described above applies and the body of Carindal alloy construction is clad entirely in patterned aluminium, a material of which much use is now being made. Overall length of the vehicle is 28 ft. 8 in.

* The first part appeared in last week's issue.

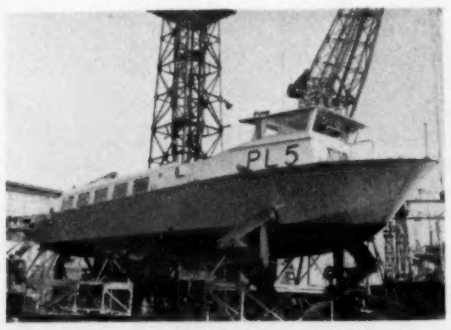
Part of the Leyland and Brossel display, with a Super Comet in the foreground and the new Meteoor on the left; a Gardner 6LX-engined Seddon six-wheeler, shown in this case by Ets. Hocké, with tipping body by Commercial Car Equipment, Antwerp; below, massive underframe treatment of a three-way-tipping semi-trailer by F. L. Stevens, Ghent; right, A.E.C. Regal IV with Desot 46-seat coach body

HYDROFOIL LAUNCH

For Shell de Venezuela

IN order to speed up the conveyance of oilfield workers from the shore to drilling sites in Lake Maracaibo, Venezuela, a hydrofoil craft, capable of carrying 50 passengers at a speed of 35 knots and built for Cia. Shell de Venezuela at the Gusto shipyard in the Netherlands, has recently been commissioned. Drilling personnel at work on the company's underwater concessions in the lake sometimes have to travel up to 35 miles by water to drilling locations. The use of high-speed launches results in a considerable saving of travelling time.

The high speed of the launch is obtained by the action of hydrofoils or streamlined planes attached to the hull, which exert lifting power when the craft is travelling at speed. The hull is lifted as the speed increases until the whole hull is clear of the water. A Mercedes-Benz 1,350-b.h.p. diesel engine, which in service will be run at about 1,000 b.h.p. at 1,500 r.p.m., powers the launch.



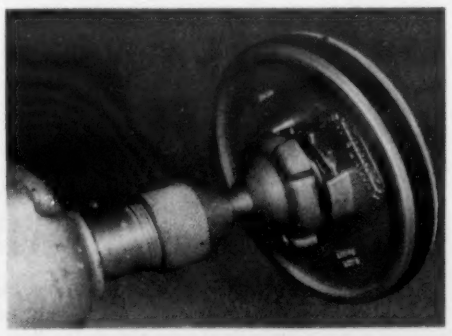
The 70-ft. hydrofoil craft at Scheidam

NEW DRILL SANDER

Stanley Swirlaway

EXCLUSIVE feature of a new sanding attachment for electric drills introduced by Stanley Works (G.B.), Limited, Rutland Road, Sheffield, is a flexible ball joint between the arbor and the sanding head. This arrangement is said to obviate swirls and prevent the gouges and scars commonly caused in power sanding by the drill running away. It also enables the sanding disc, which is on a rubber-faced metal base, to be used flat, giving a larger sanding area than conventional attachments. The ball joint can be locked when a rigid sanding face is required.

The new unit, which is named Swirlaway, is sold in packs, comprising the ball-joint attachment, a lambswool polishing bonnet and three aluminium oxide sanding discs, at 25s. Replacement sanding discs are sold in packets of five in a choice of grades, and discs for metal working are also available.



The ball-jointed head of the Stanley Swirlaway sanding attachment

This 110 b.h.p. unit is the mightiest diesel ever to power a Dodge. It is now available in Forward Control 7-ton load carriers and Tractor models.

GET MORE POWER

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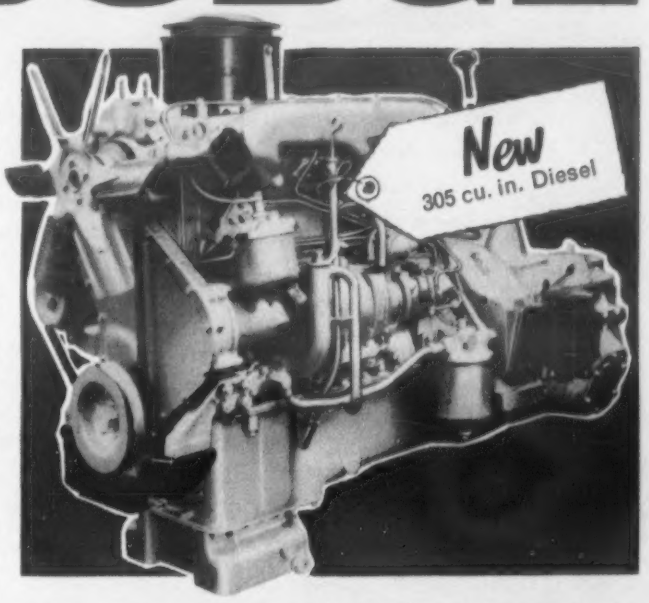
▲ Dodge is job-rated for the task it has to perform. That is why you get the choice of six husky power units from 192 to 375 cu. in. capacity. Each is designed to provide in abundance today's three most wanted qualities—efficiency, economy and endurance. And with the right capacity engine comes the right type of transmission. There are four sizes of clutch and three different gearboxes—one four-speed, two five-speed. Whatever you haul, wherever you haul, Dodge power keeps big loads moving on schedule with satisfying economy and dependability.



For Dodge 5 and 6-ton models this new 89 b.h.p. diesel brings more power. Distributor type fuel pump and chrome surfaced cylinder liners are among its outstanding features.

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'D9' *gives 11,250 BTU's per hour at 150°F t.d.—equivalent to 3.3 kilowatts, with 105 cu. ft. per minute airflow.*

'D9' *is a fresh air heater providing ideal cab ventilation in all weathers.*

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NEWS FROM ALL QUARTERS

L.M.R. Engines Withdrawn

During the period December 5 to January 2 the London Midland Region withdrew from service 118 steam locomotives.

Guide to Waterway Holidays

Just published by the British Travel and Holidays Association is a 32-page booklet with all the information necessary for planning and taking a holiday afloat on Britain's many inland waterways. There are, for example, notes on the type of craft available and where and how to hire them; descriptions of the various waterways; and information on what it costs and what to wear. The guide costs 1s. 6d. post free from the Association.

Promenade Cable Railway

Cleethorpes Borough Council on January 21 approved in principle a project for the erection of an overhead cable-car service to operate for 580 yd. along the promenade. It is expected to cost at least £20,000 and is being undertaken by two local business men, who plan to model it on the service provided at the recent Brussels exhibition. It is at present planned to have two loading stations, built on piles and each 60 ft. by 29 ft. by 18 ft. high.

Ferries Cheaper for Small Cars

British and French Railways and the Belgian Marine—who last year together carried a record 250,000 cars across the Channel—have just brought down the charges for ferrying small family cars to France and Belgium. These are the cars—including some of Britain's most popular models—which come within a new size classification which cuts 18s. off the cost of the return journey. The new rate of £3 15s. each way applies to cars not more than 12 ft. in length.

Introduction of Electrification to Finland

Finnish State Railways is to electrify about 625 miles of track of its total of 3,250 miles of line. The electrification will be of nine stretches of busy line and will be carried out over a 10-year period. Among lines to be electrified under the scheme are those between Helsinki and Riihimäki, Riihimäki and Tampere, and Helsinki and Kirkkonummi. Diesel traction is to be extended to certain lines not to be electrified and diesel locomotives used for shunting, on both electrified and non-electrified lines. There is no electrified mileage at the moment.

Reprieves for More L.M.R. Stations

As a result of further investigation the London Midland Region announces another list of stations which were under consideration for closing in May last year, but about which it has now been decided not to submit proposals to the Transport Users' Consultative Committees, either because a loss of revenue would be entailed or the savings would not be great enough to warrant closure. They are Abbey Town, Adlington (Cheshire), Blaby, Clayton Bridge, Elmesthorpe, Gretton, Hawkesbury Lane, Peak Forest, Roade, Sandycroft and Wigston Magna.

New Zealand Railcars

Design work is now in progress on the railcars proposed to replace the present Auckland-Wellington railway service, the Minister of Railways in New Zealand, Mr. M. Moohan, announced recently. He also said that tenders for the Cook Strait train and car ferry would be called for in March.

Bridging the Bosphorus

The Turkish Government is to proceed with the construction of a suspension bridge across the Bosphorus straits. It will be about 1,470 yd. long, the section over water being 1,148 yd. long. The bridge would be about 165 ft. high, sufficient to allow the passage of any ship likely to traverse the straits. It will run from Ortakoy on the European side to Beylerbey on the Anatolian side. Tenders are to be invited for an American design; the cost is expected to be about £18 million and will be recouped by tolls. Other schemes canvassed have been for a railway bridge and an underground city railway tunnel.

Southend—Sheerness Ferry?

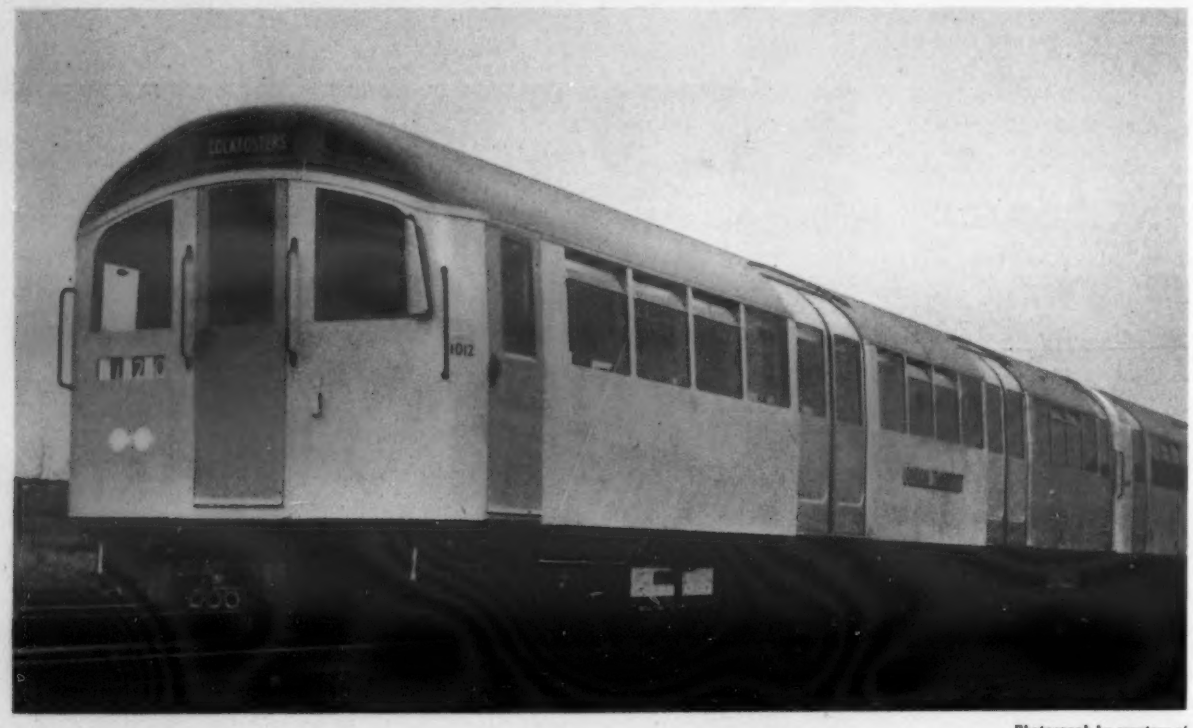
Plans are being made for a direct ferry service between Southend pier and Sheerness harbour (about seven miles) during the summer months. The service is being planned by Lieut.-Commander W. Foreman, who would be using the motor vessel *Anzio*. Buses would meet passengers at Sheerness dockyard to take them into the town. An inclusive fare of about 6s. 6d. would be charged for this service. Last year Trinity House refused to sanction the service without a pilot on board and consultations on this point are still in progress.

Human Problems in Industry

The Industrial Welfare Society has organised a tutorial group from February 1 to March 24 designed to facilitate the exchange of experience between people of different countries by giving overseas executives an insight into personnel, welfare and training schemes operating in the more progressive industrial organisations in Britain. On February 9 students visit London Transport where Mr. C. J. Cornwall, staff administrative officer, will explain the personnel records system, including statistical information relating to labour turnover, sickness, absence, etc.

Euston Great Hall and Doric Arch

No objection is raised by the L.C.C. town planning committee to the removal of the Doric arch at Euston station—provided it is re-erected on another appropriately dignified and open setting. The dismantling of the arch is required in connection with the L.M.R. electrification programme. The L.C.C. committee reports that it has deferred a decision on the Great Hall, which the British Transport Commission wants to remove for the same purpose, to obtain professional advice. Both buildings are listed as being of architectural or historic interest. An independent architect will be called in by the B.T.C. to ensure that aesthetic and architectural considerations are borne in mind. Removal and re-erection of the Doric arch is estimated to cost £180,000, the L.C.C. was told.



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COMMERCIAL AVIATION

Renewed Fares Conference?

B.E.A. PROFIT IN 1959

A SPECIAL traffic conference of the international airlines to resolve to act upon fares over many of the world air routes will be held "with the absolute minimum of delay," it has been announced by the International Air Transport Association. Sir William P. Hildred, director-general of I.A.T.A., has called the meeting to find solutions to settle fares problems which could not be resolved during the normal traffic conference session at Honolulu last October. The exact date and place has yet to be determined. In a letter addressed to I.A.T.A. members Sir William expresses the belief that, in the light of recent developments and of views expressed to him by many members, conditions have sufficiently changed to warrant the convening of a special composite meeting of the traffic conferences at the earliest possible date. Even if a conference is convened with the absolute minimum of delay, it will be virtually impossible to introduce new agreements in those unresolved areas to become effective on April 1, 1960, which is the date when the present agreements expire. He suggests, therefore, that when the special conference meets, it should as a first item on its agenda consider the extension, to the extent agreed to be necessary, of the existing fares and related conditions for a period of, say, 30 to 60 days.

Jet Surcharges to Cease

Announcements this week by British Overseas Airways Corporation and Trans World Airlines indicated that surcharges for jet flights on North Atlantic services would cease to be charged after February 29.

Irish Sea Car Ferry

B.K.S. Air Transport is to commence a regular car ferry service between Liverpool and Dublin on April 1. The initial basic frequency will be twice daily and it is stated that rates will be little above comparable charges by surface transport. The service will be flown with Bristol 170s.

C.A.A. Skybus Service

Some Nyasaland African chiefs recently had their first opportunity to fly, when a Central African Airways DC3 flew into Chileka Airport to launch the weekly Skybus service between Salisbury and Blantyre. During the aircraft's stop at Chileka, a demonstration flight was held for local civil servants, traders and the Nyasa chiefs before the return flight to Salisbury. The flights were organised to demonstrate the advantages of air travel for Africans, with a cheap fare of only £4 10s.

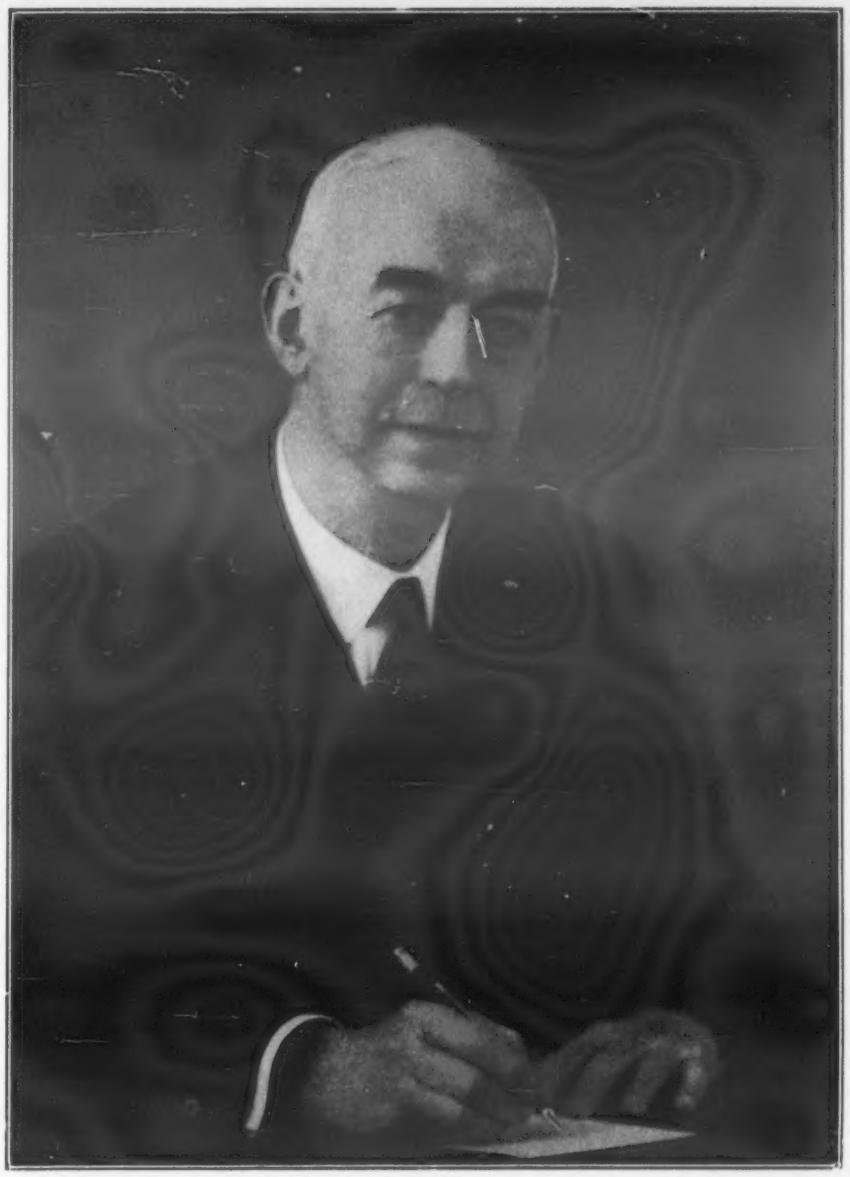
B.E.A. Makes Record Profit

In 1959 Bristol European Airways made a record profit of £2 million, which was a 2,000 per cent increase on 1958. Lord Douglas of Kirtleside, the chairman, said in his latest message to the staff: "I expected a year ago that we would carry over three million passengers during 1959. In the event—and thanks, in important measure, to the new low inclusive tour fares which we introduced in 1959—we carried 3,200,000, while passenger-miles rose 18 per cent to 1,130 millions. Still more satisfactory was the increase in our freight business—traffic was up by no less than 24 per cent to 13,850,000 ton-miles. Our traffic, as a whole, increased by 19 per cent to 126 million ton-miles. . . . Whereas in the 1958 calendar year we made a profit of rather less than £100,000, preliminary indications are that we made a profit, after paying all interest charges, of about £2 million in the 12 months ending in December. This is a tremendous achievement on B.E.A.'s short-haul and highly seasonal network and something of which the whole corporation can be proud." Looking forward into the sixties, Lord Douglas added: "The 1960s will be momentous years for B.E.A. and, on present plans, we shall be starting on a high note this year. Our first jets, the Comet 4Bs, will be in full-scale service within three months. The summer will see the first services with Vanguards—the world's first 'second-generation' turboprops. B.E.A.'s new low fares, which come into operation in April on a large number of international and domestic routes, will play a big part in attracting the greatly-increased traffic required to fill these larger and faster aircraft. . . . 1960 is going to offer the public cheaper, faster and more convenient air travel than ever before."

British Traffic in September

During September, 1959, capacity ton-miles offered by United Kingdom airlines on their scheduled services increased by 15.9 per cent and total traffic carried rose by 22.2 per cent; freight ton-miles increased by 19.2 per cent and mail ton-miles by 2.3 per cent. 593,536 passengers were carried, or 22.1 per cent more than in September, 1958, and these passengers travelled 378 million passenger-miles, or 24 per cent more. The overall load factor rose from 62.4 to 65.8 per cent. During the four-week period ended September 26, 1959, capacity operated on B.O.A.C. scheduled services went up by 23 per cent compared with the corresponding period in 1958—capacity on Western routes increased by 49.2 per cent and on Eastern routes by 2.1 per cent. Total traffic carried rose by 44.1 per cent on Western services and by 7.3 per cent on Eastern services. The total of 58,617 passengers carried by B.O.A.C. was 30.4 per cent more than during September, 1958, and these passengers flew 197.2 million passenger-miles, or 28.6 per cent more. The overall load factor rose from 61.4 per cent to 61.5 per cent. B.E.A. offered a total of 2.7 per cent more capacity on scheduled services in September, 1959, than in September, 1958; capacity on international services increasing by 2 per cent and on domestic services by 4.7 per cent. Total traffic carried rose by 18.8 per cent. 220,735 passengers, or 13.3 per cent more, travelled on international routes, and 168,198, or 22.7 per cent more, travelled on domestic routes. These passengers flew 104.1 million passenger-miles, or 16.6 per cent more, on international services, and 36.1 million passenger-miles, or 25.8 per cent more, on domestic services. The overall load factor rose from 64.2 per cent to 74.2 per cent. The independent companies operating in association with the corporations provided 18.1 per cent more capacity ton-miles on scheduled services in September, 1959, than in September, 1958; international capacity showing an increase of 16.5 per cent and domestic capacity showing an increase of 25.1 per cent. International freight traffic went up by 45.1 per cent while domestic freight rose by 38.2 per cent. Passengers carried totalled 143,031 or 34.7 per cent more, and these passengers flew 30.2 million passenger-miles or 25.9 per cent more.

DEATH OF FORMER CHIEF REGIONAL OFFICER



The late Mr. G. L. DARBYSHIRE, C.B.E., M.Inst.T.

• • • • • •

We record elsewhere in this issue the death at the age of 76 of Mr. George Lionel Darbyshire, who retired from the position of chief regional officer, London Midland Region, British Railways, on December 31, 1949. He entered the service of the London and North Western Railway at Crewe in 1898 and, after gaining experience in various branches of the passenger and goods departments, was appointed chief staff clerk in the divisional superintendent's office at Liverpool in June, 1910. Nine years later he was transferred to the staff section of the general manager's office at Euston, and on the formation of the London Midland and Scottish Railway became assistant to the chief officer for labour and establishment. In 1930 he was appointed chief officer for labour and establishment; in that capacity he was responsible, not only for staff questions affecting a payroll of nearly a quarter of a million people, but also for office arrangements, police, medical, educational and welfare services, as well as the superannuation funds. In April, 1939, he was appointed a member of the L.M.S.R. Executive Committee. During the war he was chairman of the Railways Staff Conference and of the Staff Committee of the Railway Executive Committee. In March, 1943, he was appointed a vice-president of the L.M.S.R., and in August, 1947, when the late Sir William Wood became a member of the British Transport Commission, he was made acting president of the company. From January 1, 1948, he served as chief regional officer of the London Midland Region. Mr. Darbyshire was a former member of council of the Institute of Transport. He was awarded an O.B.E. in the New Year Honours of 1939, and was promoted C.B.E. in the New Year Honours, 1945.

OMNIBUS DESIGN

Manufacturers' Problems

SIR WILLIAM BLACK'S VIEWS

IN his presidential address to the Omnibus Society (he is the first manufacturer to hold that office) Sir William Black, chairman of A.E.C., Limited, said his predecessors had in general been more interested in the operation of road passenger vehicles than in their production. Fundamentally their interests were the same. Those who made their livelihoods either producing or operating vehicles of this type attained that objective only when fare-paying passengers were being carried, and all were up against the basic economic problem of making a profit to continue in existence.

Looking Ahead

All those were matters of great interest and of vital importance to the manufacturer, who had an even greater problem. He must try to look into the future to decide what type of vehicle was likely to be called for to meet future requirements. The units must, as far as possible, be suitable for incorporation in other types of vehicles. Omnibuses represented by no means the largest proportion of production. Therefore, where possible, engines, transmission and other units must also be used in other products, from lorries to industrial and heavy earthmoving equipment. Standardising was favoured, but an overriding consideration must be to build the best vehicle for the job—even if it meant producing special units. Design was no longer merely a matter of evolution.

A factor, most important from the manufacturer's point of view, was that the life of a vehicle between the wars was much less than had grown to be expected today. Today, when the decision to produce a new model was taken it must be borne in mind that the modern road passenger vehicle was expected to, and in fact did, operate efficiently for anything up to 20 years. "At the same time the cost of producing a new vehicle is now infinitely greater and the time taken for development can be very extended. Therefore, when a manufacturer thinks of producing a new bus or coach, he probably has to face up to the fact that it is going to be four or five years before he is in economic production with that particular vehicle."

Design Problems

In projecting his mind forward to the vehicle which will have a ready market, he must give thought to technical problems and commercial problems. Where is he to put the engine? Is it to be in the front, in the side, at the back? Modern vehicles today are operating quite efficiently with engines in all these positions. Is he to incorporate leaf springing, coiled springs, rubber cushioning, air suspension? Is he to pin his faith on drum or disc for his brakes? Is he to use vacuum or compressed air brakes? Some of these may be incorporated as permissible alternatives, but the position of the engine is fundamental.

"Then," continued Sir William, "it is no use building a chassis without thinking of its payload, and I am using the term 'chassis' as covering main mechanical units, although I accept the possibility of the integral vehicle increasingly becoming adopted for passenger purposes. Just as important as the position of the engine is the position of the doors. Is the entrance to be at the front, at the back or in the middle? Is it to be (if a front entrance) in front of the front axle or behind? All these are fundamental matters which have to be settled, and in which great foresight has to be used, or, failing that, one has to make a lucky guess.

Collaboration

"We in A.E.C. supply the majority of the buses on London streets. We have, therefore, had at our disposal a wealth of operating experience, together with close collaboration with the technical and research development organisation of the London Transport Executive. When a new type of vehicle is produced for operation in London, a great deal of design and development work is jointly undertaken. In the development of the present Routemaster, a committee, under the chairmanship of Mr. A. A. M. Durrant, London Transport's chief mechanical officer in this sphere, put in a great deal of work, and I think they can claim to have achieved success. We in my own group are particularly fortunate, as we were able to combine body and chassis teams, this being particularly important in this case, as the vehicle is, of course, of integral construction."

Motorway Vehicles

"In this crowded island of ours, at long last we are beginning to see signs of a better road system, and the M1 road opened a few months ago received a lot of publicity. I think we would all like to pay tribute to the Midland 'Red' Company under their go-ahead chief, Mr. D. M. Sinclair, who knocked a couple of hours off the running time from Birmingham to London.

"More recently the North Western Road Car Company took a load of technical journalists on a test run along the M1 in a modified A.E.C. Reliance which reached 60 m.p.h. in 60 sec. from a standing start and covered a measured 46 miles in 45 min. The speed maximum of 65.5 m.p.h. was held steadily and the fuel consumption was 16.1 m.p.g. —an impressive achievement. A glass of water on the dash was not even spilled at a speed over 60 m.p.h.!

Exports

"As manufacturers, we must take into consideration the increasing availability of these motorways which require additional power, greater attention to brakes and tyres, and, of course, passenger comfort. As British manufacturers have for years aimed at exporting at least half their output, these are problems with which we are well versed and which we can handle." Sir William showed typical export double-deck buses operating in Baghdad (a fleet of 300), Tehran (a fleet of 250, all of which had a 700-mile delivery run across mountainous country and constituted the largest export order for double-deckers ever taken) and Lisbon, all with left-hand drive but typical British bodywork and in the case of Baghdad and Tehran even the red livery favoured by London Transport.

Sir William Black's address was illustrated by a very fine collection of historic photographs of A.E.C. buses in London, views of such projects as the Bacon fuel cell, the Gyreacta for accumulating power in vehicles with engines of modest size, and the Hovercraft, in which he is interested as chairman of National Research Development Corporation, and which he also described. A film of the Hovercraft under development was also shown. The address was warmly received by an enthusiastic audience and following the Society's custom, a wide-ranging discussion followed.

Rarely are the contours of dancing partners quite so happily disposed. In such a

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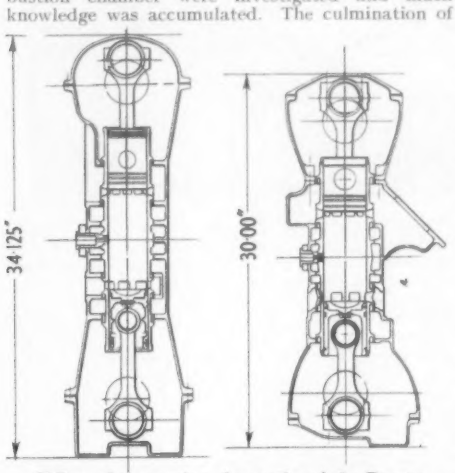
MULTI-FUEL ENGINES

*Abstracts of Papers at F.V.R.D.E. Symposium**

ROLLS-ROYCE K RANGE

By H. GRYLLS, M.A., M.I.Mech.E., M.S.A.E., M.S.I.A., Chief Engineer, Motor Car Division, Rolls-Royce, Limited

MORE than seven years ago Rolls-Royce, Limited, was asked by the Ministry of Supply to undertake an investigation into the possibility of a multi-fuel engine and work on the project has been continuous since that date. The Rolls-Royce approach was to modify its B40 four-cylinder spark-ignition petrol engine so that it could be run as a compression-ignition engine and then to make this engine run on petrol. The B Range petrol engines normally run at a maximum speed of 3,750 r.p.m. and there has never been any thought that their four-stroke multi-fuel successors should run at any lower speed. During this development, satisfactory combustion above 2,000 r.p.m. proved the most difficult problem, but several satisfactory combustion chamber arrangements were found. Vehicle tests with an unsupercharged B40 engine and also with a supercharged B80 engine, both converted for multi-fuel operation, showed a fuel saving of about 40 per cent. Initial efforts were concerned exclusively with work on the pre-combustion chamber. Many types of combustion chamber were investigated and much knowledge was accumulated. The culmination of



Effect of shortening the stroke of the Rootes engine by 0.4 in. was a reduction in overall height by more than 4 in.

this stage of the work came with the achievement of complete flexibility up to 4,000 r.p.m. on 80-octane petrol and unaided cold starts down to 10 deg. F. on all fuels.

Open Combustion Chamber

Later, development continued on four-stroke engines with an open chamber in the piston. Again several types of chamber were thoroughly investigated with creditable results. The final chamber evolved was of the "flower-pot" or frustro-conical type, which gave good multi-fuel characteristics while running much quieter than any of the pre-combustion chamber systems. Speeds were in every way comparable with the carburetted petrol engine and the performance a little better.

Recently, in co-ordinating its multi-fuel policy, the Ministry of Supply asked for a cessation of the development of the four-stroke engine, because initial experiments with two-stroke engines had indicated their low sensitivity to variations of fuel. Rolls-Royce was asked to consider a range of opposed-piston two-stroke engines, having two crankshafts geared together and giving from 120 to 300 h.p., as possible replacements for B Range petrol engines. Such a replacement must have low specific weight and bulk and installational interchangeability with the current engine.

Tests with the Rootes two-stroke opposed-piston engine had already shown the excellence of its combustion characteristics but it was soon clear that if a two-crankshaft version of such an engine having the same bore and stroke were made it would suffer from several disadvantages. With the cylinder axis vertical the overall height would be excessive; the maximum speed would be limited chiefly by the problem of injection; in consequence of these factors the engine would tend to weigh excessively; and the high loading on the piston head would lead to the associated difficulties of piston-ring and gudgeon-pin lubrication.

The first disadvantage was greatly reduced by taking a standard Rootes engine and altering its stroke-bore ratio from 1.25 to 1.05 and altering the bore to maintain the same swept volume. The results of this exercise were encouraging. A design study of the vehicle installation problems of engines based upon these two stroke-bore ratios revealed that by shortening the stroke of each piston by 0.4 in., the overall height of the engine was reduced by more than 4 in.

This reduction in height makes possible a dry sump unit which is installationally interchangeable with the older carburetted petrol engine. Dry sump lubrication is thought to be essential for most military vehicles if one is to satisfy the conflicting requirements of a low silhouette coupled with satisfactory functioning at the extreme angles of tilt specified.

Fuel-Injection Limitations

The fuel injection rates are obviously a major problem in high-speed two-stroke engines because the event occurs twice as frequently as in the four-stroke for a given engine speed. This limits the maximum engine speed to a figure considerably lower than is usual with a petrol engine. A geared output shaft overcomes this defect and also enables a wide variation in position and speed to be available to the output shaft. Engines of the K Range have such a feature and provide an output shaft in the same position, installationally, and running at the same speed as that of the B Range petrol engines.

Because it is supercharged, the two-stroke engine lends itself to enhanced performance without resorting to increments in swept volume. Although during the initial running peak explosion pressures in excess of 1,500 p.s.i. have not been contemplated, all the major load-carrying members have been designed to withstand a pressure of 2,000 p.s.i. Great care has been taken in the proportioning of the main and crank-pin journals and a design of crankcase has been adopted which does not necessitate the cut-away main bearing supports in the crankcase which usually have to be provided to enable the machining of the bores and the fitting of the liners to be carried out.

In the Rolls-Royce design, the crankcase has been made in two halves, the joint face being nearer the inlet crankshaft, thereby allowing the bores to be machined and the cylinder liners to be fitted from that end without interference from the bearing support. Naturally the main crankshaft journal bores are machined with the two crankcase halves dowelled and bolted together, so that they can be re-assembled without fear of mal-alignment when the cylinder liners have to be renewed.

Crankcase Loads

Excessive weight goes hand-in-hand with large and highly stressed lengths within the carcass of an engine. The geared opposed-piston two-stroke engine is one of the worst from this point of view. Heavy tensile loads are encountered between the top and bottom bearing caps throughout the whole length of the engine crankcase and, as these loads are fluctuating in nature, the best material to accommodate them is steel. A structure has therefore been designed in which these loads are carried by bolts passing from the top to the bottom through the unit, the reactive compression loads being carried in the surrounding bosses. The rest of the carcass is left to carry the racking shear stresses.

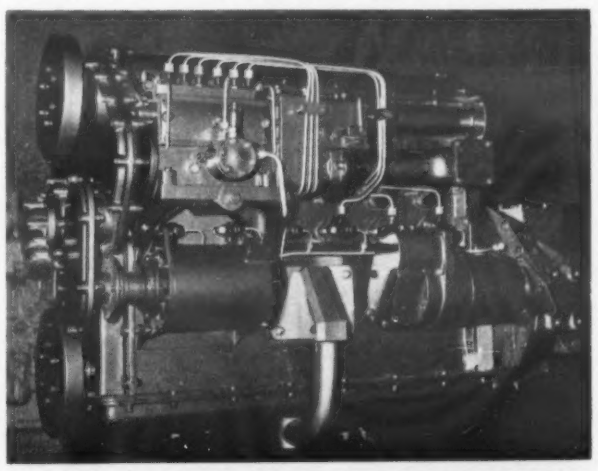
Although the crankcase is designed to be made of cast iron, it is obvious that a light-alloy version, using this construction, could be made with only minor changes in design. The reduction in weight is assessed at from 25 to 30 per cent.

One of the anticipated disadvantages of this construction, but one which has not materialised, is that the approach to the inlet ports might be restricted unduly by the large through-bolt bosses, but an assessment of the areas of the bearing cap-crankcase interface, necessary to accommodate the nip pressures when using light alloy, indicated a boss spacing rather wider than would be the case when using cast iron. Air-flow restriction is reduced in consequence to the point of insignificance.

Piston Design

The Achilles heel of the pressure-scavenged two-stroke diesel engine is the piston. In the initial design the piston is made of cast iron with a heat-resisting steel crown, basically similar to the well-established design which has been used in this type of engine. The piston is uncooled for the moderate initial requirement of 40 b.h.p. per pair of pistons, but for higher outputs provision is made for oil cooling, so that more advanced types of piston may be accommodated having either direct cooling by static oil jets, or by surface cooling from drilled oilways in the stem of the connecting rod. Either of these two systems can be employed to bring down the temperatures of the piston-ring belt, while still retaining what would seem to be the advantage of a fairly high temperature at the piston crown. At present, tests prove the output of the engine to be limited by the exhaust temperature more than by a smoke-free exhaust and some form of piston cooling would undoubtedly enable higher outputs to be obtained.

The use of composite light alloy pistons is to be investigated as development proceeds. It is thought to be unwise, however, to take full advantage of this possible weight reduction, because piston inertia opposes and so reduces the uni-directional gas load on the gudgeon pin and crank-pin. At present the crankpin bearing pressures have a maximum value of about 3,950 p.s.i. and the main crankshaft journal bearing pressures are somewhat less.



A full-size model of Rolls-Royce 240-b.h.p. opposed-piston multi-fuel diesel developed as a direct replacement for the B80 petrol engine

Other Design Features

An attempt has been made to give a broad outline of the methods adopted to combat the four main disadvantages of this particular engine. However, other features of the design of the engine, although slightly more mundane, are nevertheless interesting and worthy of note. Dynamically, the crankshafts do not present any unusual problems. By virtue of their short stroke and fairly large crankpin and journal diameters, they are rugged and torsionally stiff. In the event of the firing order of a multi-cylinder engine of this type necessitating the use of balance weights to counteract the rocking couple, there is adequate room at each end of the crankshafts for those to be accommodated.

At the front of each crankshaft, that is, at the opposite end to the coupling gears, viscous dampers are fitted to take care of torsional resonances. At the rear or driving end a further bearing has been introduced to the rear of each of the driving gears to provide a straddled mounting for the gear.

The five gears which couple the two crankshafts together are erected with the minimum amount of

(*Continued on page* 14)

* Earlier parts appeared December 5 and 19.

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CRANKCASES: Fractures caused by broken connecting rods and run big ends, broken-off bearer arms, smashed sumps, cracked stud housings, broken bearing and flywheel housings, stripped drain-plug threads. IRON, ALUMINIUM OR ELEKTRON.

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TRANSMISSION: Cracked or broken gearbox and axle casings, damaged gear teeth, worn splines and tapers, fractured shafts, cracked differential casings.

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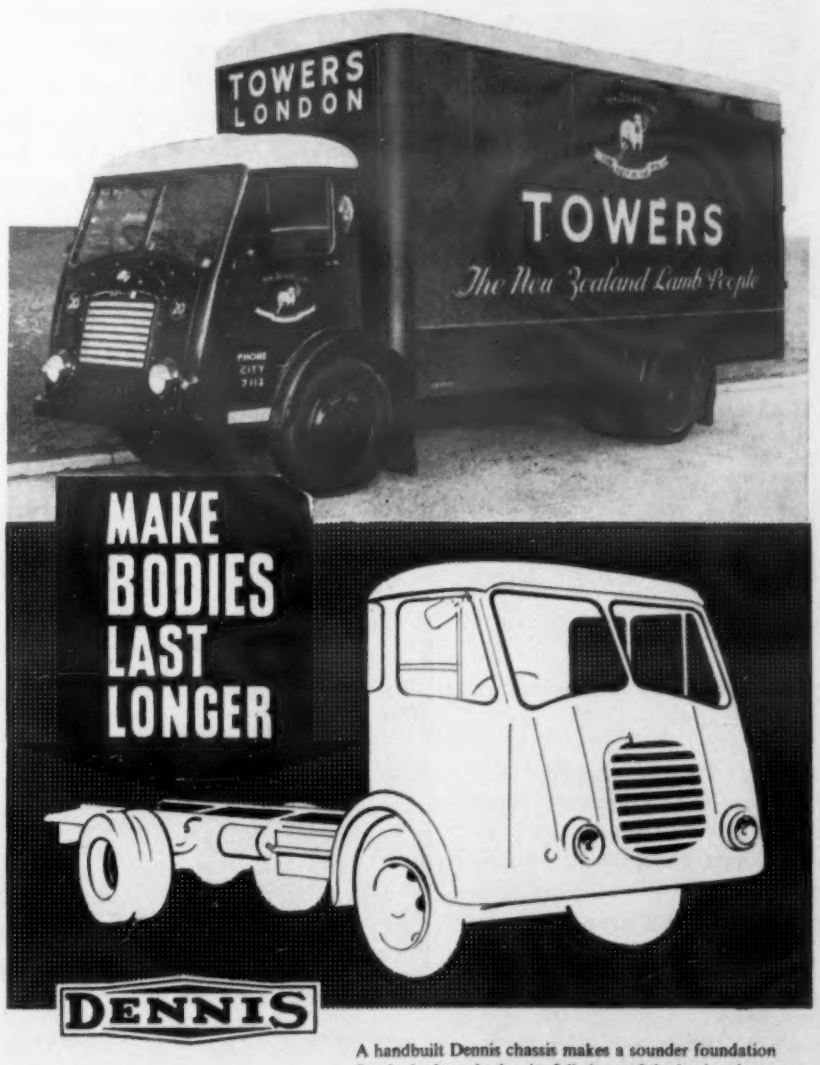

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Alexander Rooke,
Town Clerk.

City Chambers,
Glasgow, C.2.

CITY OF MANCHESTER

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THE Transport Committee invites tenders for:

(a) 40 or 90 D/D motorbuses (chassis with C.I. engine and bodies 27 ft. long by 8 ft. wide, seating capacity 64/65 passengers; or 30 ft. long by 8 ft. wide, front entrance (preferably in front of front axle) with maximum seating capacity).

(b) 5 S/D motorbuses (chassis with C.I. engine and bodies 30 ft. long by 8 ft. wide, front entrance).

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ANTIPODEAN ROLL-ON ROLL-OFF

New Vessel for Bass Straits Service

THE first Australian roll-on roll-off vehicular ferry, which came into operation at the beginning of October, 1959, claims also the distinction of being the only ferry of its type in the world to operate over a distance as long as 230 miles. The vessel, *Princess of Tasmania*, runs thrice-weekly between Melbourne, Victoria and Devonport, Tasmania, carrying passengers, private cars and caravans, commercial vehicles and mail vans, and the forward end enables vehicles to be turned round in readiness for disembarkation on arrival in port. Vehicles are also carried in a lower hold to which an electric hoist provides access, and others may be stowed on mobile stands alongside the engine casing.

The ship's main engines are two Nydqvist and Holm Polar diesels, each developing 4,300 b.h.p. at 230 r.p.m. These drive twin screws, which were

"Princess of Tasmania" leaving Newcastle harbour for her sea trials

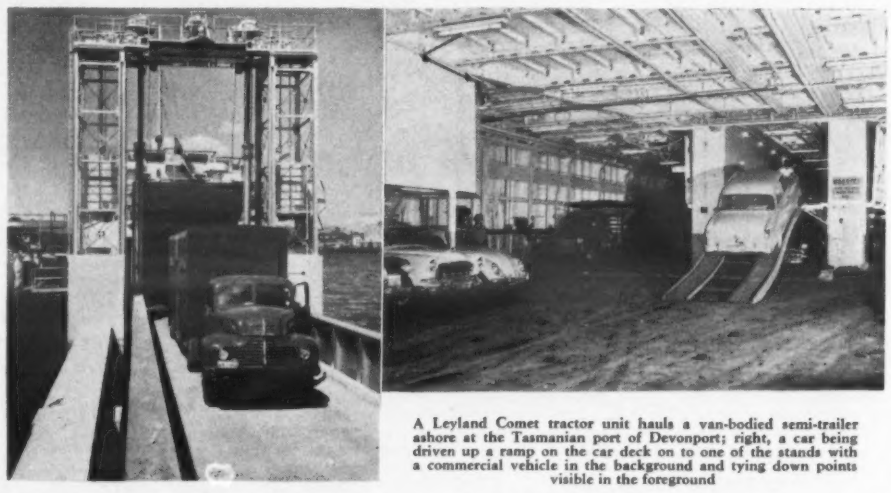
sailing at 8 p.m. from each port. She is 370 ft. overall, with a beam of 58 ft. and a displacement of 4,780 tons.

The vessel was built in Australia at the State Dockyards, Newcastle, New South Wales, at a cost of more than £2 million. The keel was laid in November, 1957, and the launching took place in December of the following year. She commenced sea trials in July, 1959, and was commissioned two months later. Owned and operated by the Australian National Line, *Princess of Tasmania* was designed and built specifically for the carriage of vehicles between Tasmania and the Australian mainland. She has a service speed of 17 knots and the overnight journey takes 14 hr.

The ship carries 334 passengers, 178 of these being accommodated in single, two- and four-berth cabins. The remainder are accommodated in three lounges equipped with aircraft-type reclining chairs. Meals are served in a café, seating 80 people, and in addition there is a smokeroom with bar and a small shop.

necessary because the ship's draught limited their diameter to such an extent that the required speed could not be obtained with only one screw. There are four 425-kW diesel generators to provide electric current for all the ship's services. The ship has twin rudders to give greater manoeuvrability in the confined waters of the terminal ports and a Voith Schneider propeller is fitted at the bow to assist berthing.

Denny Brown automatic stabilisers have been fitted to minimise rolling and the latest navigation aids, including radar, gyro compass, echo sounder and radio telephone equipment, have also been provided. *Princess of Tasmania* replaces the 24-year old *Taroona*, and at the end of this year she will be joined by the vehicle-deck cargo ship, *Bass Trader*, which will run between Melbourne and the three Northern Tasmanian ports of Burnie, Devonport and Launceston.



A Leyland Comet tractor unit hauls a van-bodied semi-trailer ashore at the Tasmanian port of Devonport; right, a car being driven up a ramp on the car deck on to one of the stands with a commercial vehicle in the background and tying down points visible in the foreground

A passenger lounge with adjustable aircraft-type seats—the single fare for the 230 miles is £3 17s.; right, the bar

Vehicle Accommodation

The vehicle deck, which runs almost the full length of the ship, is 325 ft. long and carries 100 cars, freight vehicles and mail vans. The last named are the final vehicles to be put aboard, being shunted by prime movers. Access is gained by way of a ramp at the vessel's stern and a turntable at

Ferry charges range from £18 return fare for a car up to 11 ft. long to £27 for one exceeding 15 ft. in length. The rate for caravans and trailers up to 13 ft. 6 in. long is £29 return and for those of 17 ft. £44. It is reported that the operation of the new vessel has made possible substantial reductions in freight rates for cargo carried between the Australian mainland and Tasmania, with extensive use being made of semi-trailers. Single fare for lounge chair accommodation is £3 17s.; two-berth cabins cost £6 2s. and single berths £6 8s.

BAKELITE plastics *go to town in the* **ROUTEMASTER**

BAKELITE Plastics have been used extensively in London Transport's new Routemaster buses, both in the form of Polyester Resins and of VYBAK Decorative Rigid Sheet. The Routemaster is built by Park Royal Vehicles Ltd. to L.T.E. specifications

BAKELITE Polyester Resins

• CURVED BONNET TOP • UPPER DECK EMERGENCY DOOR • FRONT RADIATOR SURROUND • NUMBER PLATE • MIRROR PATRASS • VENTILATING TRUNK

Cascelloid of Leicester mould all these components in BAKELITE polyester resin reinforced with glass fibre. This material simplifies the production of complex curves, imparts high impact strength and permits close tolerances. These parts are light in weight, cannot rust and do not need painting.

VYBAK Decorative Rigid Sheet

• WINDOW SURROUNDS IN BOTH SALOONS
• LINING FOR REAR BULKHEADS IN LOWER SALOON

More than a hundred different blanks and formings in a self-coloured Chinese Green shade of VYBAK Decorative Rigid Sheet are used throughout the Routemaster. This material is light-fast, easily fabricated and cleaned, and will not stain.

The words BAKELITE *and* VYBAK *and the Trefoil symbol are registered trade marks of Bakelite Ltd.*

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TGA 6940A

CLASSIFIED ADVERTISEMENTS

ACCEPTANCE.—Advertisements can be accepted up to 2.30 p.m. on Monday to ensure insertion in the current week's issue. MODERN TRANSPORT is on Sale every Friday.

SITUATIONS VACANT

ASSISTANT SECRETARY required for Traders Road Transport Association. This is a responsible position with a wide range of duties calling for initiative and ability. Candidates should be aged 25-35 and be chartered secretaries or equivalent. Essential requirements are good general administrative experience including preparation of minutes and reports, and capacity to acquire working knowledge of motor law. Commencing salary about £1,000 p.a. according to qualifications and experience. Pension scheme. Apply in writing, in strict confidence, to Secretary, T.R.T.A., Ltd., 146 New Bond Street, London, W.1.

TROLLEYBUS OVERHEAD EQUIPMENT ENGINEER required by British Insulated Callender's Construction Co., Limited, experienced in construction work and preparation of layout drawings and willing to serve abroad. Write, giving details in full and salary required to Staff Officer, 30 Leicester Square, London, W.C.2.

TRANSPORT CLERK required by British Oxygen Gases, Limited. Man 20-25 for transport office controlling 100 vehicles. Experience must include some supervision of staff and knowledge of transport forms, etc. Pension Scheme, Canteen, Social Club. Write, giving full particulars, to Personnel Officer, British Oxygen Gases, Limited, East Lane, North Wembley, Middlesex.

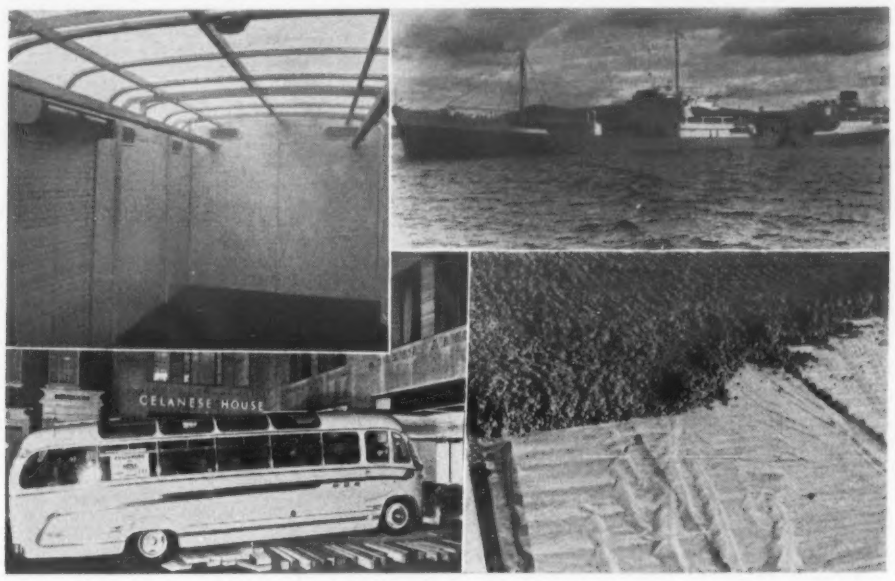
DIVERSE PRODUCTS USED IN TRANSPORT

Exhibition by Courtaulds

MANY men engaged in transport design and operation know of applications of man-made materials in their own line of country but have little idea of their uses in other spheres, or even that other products are available for their work. Some cross-fertilisation of ideas is beneficial and in opening the exhibition *Courtaulds in Transport* last week at Celanese House, London, Mr. C. F. Kearton, a managing director of Courtaulds, Limited, put the possibility forward as a specific object of the exhibition.

Exhibition's Purpose

He said that they had found that products developed for one section of the industry could be successfully adapted for the different needs of another section. "For example, we have developed material suitable for noise reduction in road transport vehicles, and the same basic material can be successfully adopted for the insulation of ships' refrigeration holds. We feel that the exhibition will suggest many other such purposes to our customers." Another object was that they wished to make more widely known the achievements of the group's research and development team. "Finally," said Mr. Kearton, "although in many other activities the Courtaulds group supplies direct to the transport industry, we are primarily producers of basic materials such as fibres, chemicals, moulding powders, plastic sheet and film, and these are transformed by our customers into the end products you require."



Translucent van roof of polyester resin from Beck, Koller and Co., Limited, with T.C.E.P. (trichlorethylphosphate) from British Celanese, Limited, as a fire retardent plasticiser in the resin; Cerrux paints from Cellon, Limited, on the tanker "Regent Royal"; below, a Bedford-Duple coach furnished with Courtauld carpets and upholstery fabrics being offered up to the showroom window of the Celanese House exhibition; right, Cellophane, Limited, has developed Lubrithene as a multi-ply concrete interlay with the object of eliminating irregular cracking in concrete rafts

This is the first time that the products of the many companies within the Courtaulds group have been brought together under one roof for a major public exhibition. It is also the first time the group has devoted an entire exhibition to demonstrating the contribution it makes to one of Britain's major industries—the transport industry. Taken as a whole, transport can be considered as the group's largest single customer. Of each of the industry's separate branches there are, in fact, very few where the group does not or could not make an important contribution through the application of its many products.

Group Role

Courtaulds' contribution to transport includes close co-operation with the industry in the development and application of new products to meet new problems. Many varied products were exhibited at Celanese House. Some of those shown are designed specifically for use in transport; others have wide fields of application there—or have been adapted specially from existing products to meet the needs of transport. Air, sea, road and rail were represented and some products could be applied throughout all transport. We refer to some outstanding materials shown last week and this in this attractive exhibition.

A new textile material for the construction of tyre carcasses, Tyrex, is a filament yarn developed by Courtaulds specifically for high tyre performance. The qualities which have been given to Tyrex are high-tensile strength, fatigue resistance and impact strength, small but sufficient extensibility, and minimum change of qualities at different running temperatures. In performance, these qualities make, it is claimed, for stronger, safer, longer-wearing and quieter-running tyres at no extra cost.

Duracour is a fabric designed for furnishings that have to stand up to hard wear and tough conditions. A product of Courlak, Limited, a subsidiary of Samuel Courtauld and Co., Limited, Duracour not only stands up to extreme abrasion, but also resists staining, spilling and burning, and can be sponged clean readily. It achieves these qualities through the use of a new face-finish, while at the same time it retains the appearance, texture and comfort of a furnishing fabric and has the highest possible colour-fastness through the use of spun dyed yarns. It is produced in some 50 designs, many colourways, and in lightweight, standard and heavy-duty weights. Railway coach seating, seat coverings in a Duple coach body and its use in the coach roof, on passengers' luggage and the front dash and switchboard of the Bedford chassis caught our eye. In this Bedford-Duple vehicle Fibrolane-Fibro carpet material was used in the bodywork and Tenasco Rayon in the Avon Highway tyres.

The contribution of Cellon, Limited, a subsidiary company of Courtaulds, Limited, to the aircraft industry is fairly well known, for that industry has been the largest user of Cellon finishes for many years. A new contribution to safety in the air is fluorescent paint produced by the company and used for the marking of commercial aircraft. Bondalay is a bonded wadding, made by a number of manufacturers from the Celanese acetate fibre Fibraceta, and designed for heat insulation. A closely associated product is Bondacoust, used for sound insulation and noise reduction. The qualities of these materials, besides their efficiency as insulants, are their ease of handling, their freedom from fibre fall-out and their lightness. The hold of a typical refrigerated cargo ship would use some 250 tons of glass fibre insulation, but might need only 75 tons of bonded Fibroceta for the same efficiency. This material accounts for the low noise level in the Midland "Red" special coaches for service on M1.

Lubrithene

For better, cheaper concrete roads and runways, Lubrithene concrete interlay, a product of British Cellophane, Limited, is a multi-ply thermoplastic material only 0.003 in. thick, specially developed and patented for use as a separating membrane in concrete laying. It acts as a solid lubricant with a coefficient of friction less than 0.25, considerably reducing friction between concrete raft and base. It minimises the danger of uncontrolled cracking of the concrete, particularly during the early stages of setting when the raft is weakest. Lubrithene brings about economies in material and labour and also serves to improve the riding surface, as joints can be spaced at wide intervals.

And so from plastics to four-ply high-tenacity rayon in air bags, for pneumatic suspension, from Fibro-Duracol uniform clothing to a wool-Fibro-Duracol conductress's suit by Manclarke of Edinburgh, from wiping cloths to water hoses, the visitor could see the complex and invaluable contribution of the group to life in the latter half of the 20th century. Those who missed the exhibition or wish to make further inquiries should get in touch with the Marketing Division, Courtaulds, Limited, Celanese House, Hanover Square, London, W.1.

New Piccadilly Line Stock

(Continued from page 5)

higher than that of the A end driving car, the number of the non-driving motor car is 8,000 higher than that of the D end driving car, and the number of the D end car is one greater than that of the A end car, as shown in the table.

Compressed air for operating the brakes, doors and control equipment is provided by synchronised reciprocating two-stage compressors, each with a delivery of approximately 30 cu. ft. of free air per minute. Two compressors are mounted on each trailer car, thus providing two compressors on each operative unit in accordance with standard London Transport practice.

Coolers

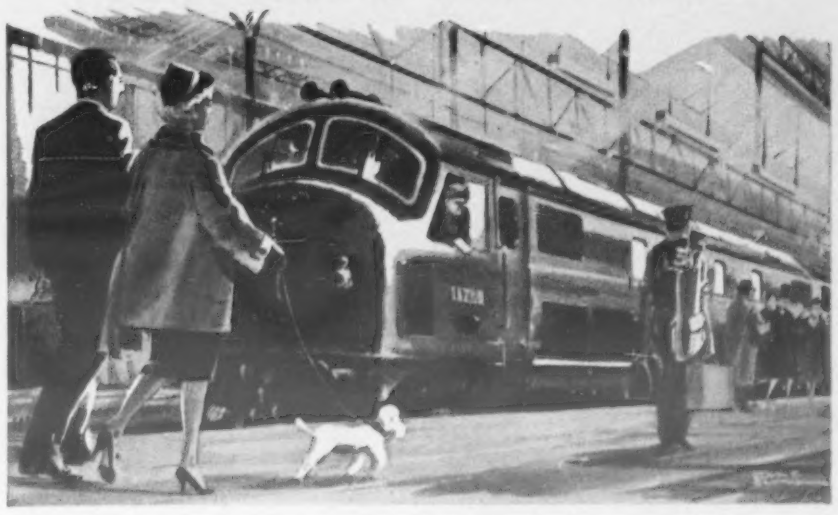
On the prototype trains trouble was experienced with excessive water in the air system due to inadequate cooling. This has been rectified on the bulk order by the provision of generously designed copper after-coolers, and the intercoolers will also be of copper instead of steel to eliminate troubles experienced on earlier stocks due to scale deposits reaching the second stage of the compressor. To eliminate scale as far as possible in other equipment most air piping is now in copper instead of steel.

The service braking system is electro-pneumatic, with self-lapping driver's brake valves, and uses the standard L.T.E. form of retardation control. The circuit has been modified to give greater reliability and simplify maintenance. Emergency braking is by automatic air brake as on previous rolling stock. Poppet valves are being introduced in place of the existing rotary valves of the driver's brake valve and isolating cock to increase reliability and reduce maintenance.

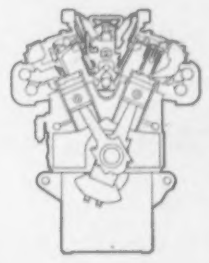
Door Control

There is now no passenger control of individual doors, so the air door equipment has been simplified so that one set of valves controls all doors on one side of each car. All doors are operated under the control of the guard and normal arrangements for individual control of guards' doors, and cutting out end doors should the end of the train still be in tunnel, have been provided. Certain doors of each car can also be opened in emergency by a cock on the outside of the car. Door fault indicator lights are mounted outside each car to assist station staff in locating doors which have not properly closed.

'PAXMAN' for first class returns



Paxman Class 'YL' 9¾" bore diesels have proved capable of superb performance under the heaviest load conditions, contributing to the economic operation of main line systems throughout the world. These robust V-form Paxman diesels, possessing a high power-to-weight ratio, are suitable as medium speed units for either electric, mechanised or hydraulic transmission. They increase the efficient and profitable working of main line locomotives by incorporating all the latest developments in modern diesel engineering



PAXMAN 'YL' diesels

for main-line traction . . . 750-2300 b.h.p.

Paxman rail-traction diesels range from 4-2300 b.h.p.

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Constant refrigeration with maximum payload for all journeys—equipment is light in weight, takes up little space
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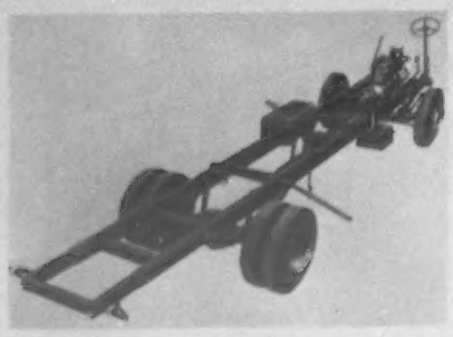
DODGE PASSENGER CHASSIS

Again Available on Home Market

FOR the first time since before the war, Dodge Brothers (Britain), Limited, is offering light and heavy passenger chassis on the home market. Before the war passenger chassis were made at the Dodge factory at Kew for both home and export sale, but in recent years they have been built for sale overseas only. Now the two forward-control chassis—one on a 194-in. wheelbase for 18,500 lb. gross weight, permitting seating for up to 41 passengers, and the other on a 216-in. wheelbase for 21,200 lb. g.v.w. for up to 45 passengers—are again available in the United Kingdom.



The Dodge passenger chassis is again available on the home market in two wheelbase lengths for single-deck bodies with up to 45 seats

Both versions have flat-topped chassis frames, 8⅞ in. and 10 in. at maximum depth of side-members respectively, suspended on long semi-elliptic leaf springs, with negative camber under load, and double-action shock absorbers all round. The lighter chassis is available with either a 251 cu. in. Dodge petrol engine or the new Perkins 305 cu. in. diesel, which features a distributor-type fuel pump, chrome-surfaced cylinder liners and hydraulic governor. The petrol engine develops 116 b.h.p. at 3,600 r.p.m. (but is governed to 3,000 r.p.m.) and has maximum torque of 204 lb./ft. at 1,400 r.p.m., while the diesel produces 89 b.h.p. at 2,600 r.p.m. with torque of 218 lb./ft. at 1,250 r.p.m.

On the 216-in. wheelbase chassis there is the choice of either a Perkins 340 cu. in. or Leyland 351 cu. in. diesel. Output figures are 104 b.h.p. at 2,500 r.p.m. and 240 lb./ft. at 1,625 r.p.m., and 105 b.h.p. at 2,400 r.p.m. and 255 lb./ft. at 2,400 r.p.m. respectively. With all power units a heavy-duty five-speed gearbox is fitted, with constant-mesh helical third and fourth gears.

Features common to all versions include a hydraulically actuated clutch, rubber-cushioned transmission line, cam-and-lever steering and Hydrovac vacuum-assisted hydraulic two-leading-shoe brakes. A spiral bevel axle is the standard fitting, while a two-speed axle is available optionally.

COACH TOURS TO MOSCOW

Excelsior European 15-Day Trip

WITH unrivalled postwar experience of operating motor-coach tours to the U.S.S.R. and East European countries, Excelsior European Motorways, Limited, Holdenhurst Road, Bournemouth, is to introduce a new series of 15-day tours to the Soviet capital, with individual tours starting at three-weekly intervals from May 29 to October 2. The inclusive cost of the tour has been fixed at the remarkably low figure of 65 guineas. The announcement was made when the parent company, Excelsior Motorways (Bournemouth), Limited, whose private-hire and tours business was founded in 1928, opened new offices recently in Holdenhurst Road. Excelsior European Motorways was formed and was granted a licence to operate European tours in 1950 and in 1956 Excelsior acquired an interest in a Belgian coach-operating company.

The new tour service to Russia follows generally a route of which we ourselves had experience when Excelsior European Motorways, in conjunction with Ford Motor Co., Limited, undertook a very fast run to Moscow and back last October with a Duple-bodied Ford Thames coach. The London—Moscow journey was then completed in under 45 hours, at an average running speed of 51 m.p.h., and although operation of the new service will be a good deal less spectacular, at least some of the experience gained on that occasion has been of value in planning the itinerary. The remarkable vehicle performance then established also prompted the decision of Excelsior to use a Thames-Duple coach for the tour, an order for which has just been placed.

Each tour leaves Bournemouth, London and Ferryfield Airport on Sunday and after crossing to Ostend by air, arrives in Moscow on Wednesday, having made night stops on Monday at Poznan and Tuesday at Minsk. The first night is spent in the coach travelling, as is the last night. Altogether six nights are spent in Moscow, two in Warsaw and one each in Poznan, Minsk, Smolensk and Berlin.

AUTOMATIC INFORMATION

Publiphone at Smithfield Show

AFTER a successful public debut on the Girling and Siba stands at the recent Motor Show at Earls Court, a new electronic equipment designed to give automatically the answers to the type of questions constantly asked of exhibitors was put to wider use at the Smithfield Show, where it was installed on the stands occupied by Ford Motor Company, Massey-Ferguson and Shell-Mex. Named Publiphone, the equipment is available in this country from Automaten Distributors, Limited, 35 Portland Place, London, W.1.

Publiphone is basically a multiple tape recorder and player with a capacity of 20 separate sound tracks each with a maximum duration of three minutes. The equipment is used in conjuction with a display panel on which any number of up to 20 questions is listed. Answers to questions are prerecorded on the tapes and are accessible to an inquirer through a telephone handset merely by dialling the number of the appropriate question. Numbers of telephone sets can be linked to the same equipment or the answers to selected questions can be fed through a loud speaker or existing public-address system. Questions can be linked to exhibits, photographs or other display material.

Recording Service

Automaten Distributors maintains a complete recording service and can supply erasing and recording equipment for users requiring frequent changes in recorded text.

Publiphone should prove of value not only at fixed exhibitions, where its use relieves attendants of the tedium of constant repetition of answers to stock questions and might also reduce the number of stand attendants necessary, but also in many other promotional spheres, particularly perhaps in mobile showrooms and exhibitions, in which the ability to have both questions and answers in appropriate languages is an added advantage.

MULTI-FUEL ENGINES

(*Continued from page* 11)

backlash between the teeth in order better to withstand the fluctuations in the applied loads. All the gears (except that of the output shaft) are mounted on plain bearings which are fed by high-pressure oil; the output shaft is carried in anti-friction bearings since these bearings have to withstand the load of the clutch thrust and the loads induced by the flywheel.

The auxiliary wheelcase is driven from the coupling gears by a torsionally flexible shaft, while from the wheelcase various auxiliary drives are taken. The supercharger is driven by a damped torsionally flexible shaft which is so designed as to absorb the pulsations in the air delivery.

The injector pump is driven by a single rigid shaft from the train of coupling gears and the fuel rack is controlled by a hydraulic governor directly coupled to the pump. The two-hole injectors and the whole of the injection equipment, which is situated high up on the crankcase, are readily accessible.

Although the engine has been designed to be installed with its cylinder axis vertical, future requirements may call for a horizontal installation and its operation in this attitude is a development which has been borne in mind.

(*To be continued*)

★

The industrial wheeled tractor or rail shunter manufactured by Ransomes Sims and Jefferies referred to in our January 16 issue as the product of another manufacturer

FORTHCOMING EVENTS

Feb. 1.—R.C.T.S. (Northampton). R. Frisby, "Wolverton Past and Present." Liberal Club, Northampton. 7.30 p.m.
Inst.T. (Midland). F. C. Coleman, "Newport Docks—Organisation and Operations." Engineering Centre, Stephenson Place, Birmingham. 6.30 p.m.
S.E. Presidential address by E. G. Massy Collier. The Geological Society, Burlington House, W.1. 5.30 p.m.
I.T.A. J. Burnett, "Air Freight." Liverpool Corporation Transport Offices, Hatton Garden, Liverpool. 7.15 p.m.
Inst.Traf.A. Lt.-Cmdr. J. Fordham, "Fire and Transport." Wig and Gown Hotel, Maidstone. 7.30 p.m.
Inst.T. (Met.). Sir John Benstead, "The Changing Scene in Transport since 1947," and visit of president. 66 Portland Place, W.1. 6 p.m.
Inst.T. (Darlington). F. Everitt, "Civil Engineering on British Railways." United House, Grange Road, Darlington. 7 p.m.
Inst.T. (E. Anglia). G. D. Willis and J. C. Norman, "A Report on Road Traffic Problems in Norwich." 79 Thorpe Road, Norwich. 6 p.m.
Inst.T. (Sheffield). Films. Royal Victoria Hotel, Sheffield. 7.30 p.m.

Feb. 2.—Inst.T. (N.W.). Jas. Royston, "The Movement of Freight Traffic." Gas Service Centre, Manchester. 6.15 p.m.
R.C.T.S. (Lancs and N.W.). Supt. B. R. Preston, "B.R. Modernisation." Preston Station. 7.15 p.m.
Inst.T. R. M. Geddes. Informal luncheon. Connaught Rooms, Great Queen Street, W.C.2. 12.15 for 1 p.m.

Feb. 3.—Inst.H.E. (E.A.). D. E. H. James, "Highway Law." Assembly House, Theatre Street, Norwich. 6.45 p.m.
I.R.T.E. (E. Midland). R. C. Nicholls, "Is Lubrication Necessary?" Mechanics Institute, Nottingham. 7.30 p.m.
I.R.T.E. (Western). Dr. J. H. Weaving, "Gas Turbines." Royal Hotel, Bristol. 6.30 p.m.
E.R.S. A. W. H. Pearsall, "Lancaster—Morecambe—Heysham," and V. Goldberg, "Mersey Railway." 153 Drummond Street, N.W.1. 7.15 p.m.

Feb. 4.—Inst.H.E. Paper by member of the staff of John Laing and Son, Limited, "The London to Yorkshire Motorway." Adelphi Hotel, Micklegate, York. 7 p.m.
Inst.T. (M'side). Wing Cmdr. R. A. C. Brie, "Intercity Helicopter Transports." Chamber of Commerce, Liverpool. 6.30 p.m.

Feb. 5.—Rly.C. Annual general meeting. Royal Scottish Corporation, Fetter Lane, E.C.4. 7 p.m.
R.C.T.S. (London). W. A. Camwell, Films, "Some Highlights of Postwar Years." R.C.H., Eversholt Street, N.W.1. 7.15 p.m.
Inst.H.E. C. S. Chettoe, "Some Modern Developments in Highway Bridge Design." 11 Upper Belgrave Street, S.W.1. 5.30 p.m.

Feb. 6.—R.C.T.S. (E. Midlands). Annual dinner, Fox Inn, Upper Parliament Street, Nottingham. 6.45 p.m.
R.H.A. (North London). Annual Ladies' Festival, Hendon Hall Hotel, Hendon, N.W.4. 5.30 p.m.

London Transport has placed a contract with I. and W. Whitehead, Limited, for the reconstruction of buildings at Mansion House Station (District and Circle Lines). As already announced, the present main entrance to the station on the corner of Queen Victoria Street is to be demolished in connection with a City of London road widening scheme and a permanent entrance will be built on the new building line when the road works are completed. In the meantime a temporary entrance from Queen Victoria Street will be used.

IMPORTANT CONTRACTS

British Crash Tender for U.S.S.R.

INCLUDED in the cargo of a Russian ship which sailed from London on January 16 was a Pyrene Mark 6T airfield crash tender, which had been ordered by the U.S.S.R. Trade Delegation in the United Kingdom. Built on a Thornycroft six-by-six chassis, it is powered by a Rolls-Royce 200-b.h.p. petrol engine and has a foam output of some 5,000 g.p.m. (imp.) for more than two minutes. The tender is designed to take in additional supplies of water and foam compound during operation, without breaking the continuity of foam production; it is also capable of delivering high-pressure water jets for general fire fighting and carries in addition CO_2 equipment.

Hammersmith Flyover

A contract valued at £912,500 for construction of the flyover at Hammersmith Broadway, part of the Cromwell Road extension, has been awarded to Marples Ridgeway and Partners, Limited. The work is expected to be completed in about 21 months.

New Dredger for Port Talbot

British Transport Docks has ordered a twin-screw diesel-electric suction dredger from Richard Dunston, Limited, for service at Port Talbot. The new vessel will supplement the existing dredging fleet and will help to provide and maintain an approach channel deeper than that at present available.

Vickers Hydraulic Equipment for DH121

Sperry Gyroscope Co., Limited, is to supply 72 Vickers hydraulic pumps and ancillary equipment for the 24 Airco DH121 jet air liners ordered by British European Airways. Vickers hydraulic units, which have also been specified for B.O.A.C.'s VC10 long-range aircraft, are built by Sperry under Vickers Inc. licence.

Sulzer Brothers Production

Output of diesel engines from factories throughout the world of associated companies of Sulzer Bros. (London), Limited, during 1959 totalled 107 units aggregating 215,860 b.h.p. The total included 15 big and 20 medium marine engines and 72 auxiliary marine, stationary and traction engines. It does not include engines produced by Sulzer licensees.

Emergency Lighting for Barton Bridge

Oldham and Son, Limited, has supplied emergency lighting equipment for the Barton High Level Bridge over the Manchester Ship Canal. The equipment was required as a reserve supply to illuminate part of the collapsed structure which was overhanging the canal, constituting a potential danger to shipping. It was delivered within 24 hr. of being ordered.

South African Firm Gets S.A.R. Order

A railway order valued at nearly £10 million has been placed by South African Railways with the Union Carriage and Wagon Company (South Africa), Limited, of Nigel, Transvaal. The order is for 113 electric motor coaches, 60 driving trailers and 276 plain trailer coaches, plus spares. In all, 11 tenders were submitted by manufacturers in Britain, Europe and South Africa.

I.A.L. Technicians Abroad

International Aeradio, Limited, has concluded an agreement whereby it will provide aeronautical telecommunications engineering staff for service with the Director of Civil Aviation for the Government of the Federation of Nigeria. The company has also received the approval of the Iraqi Council of Ministers for renewal of its contract for the supply of a radio engineer at Baghdad Airport.

Clydesdales for Concrete

The new Albion Clydesdale CD21T tipper chassis is proving popular with transport operators specialising in supplying ready-mixed concrete. In the past three months Albion Motors, Limited, has received orders from four such operators, including Ready Mixed Concrete, Limited, Penfold Ready Mixed Concrete, Limited, Sussex Ready Mixed Concrete, Limited, and Peter Jackson Quarries, Limited, for a total of 37 of these 14-ton chassis.

Rush Order Completed by Mirrlees

A rush order for diesel generating equipment, received from its agent, Buxton, Ltda., Argentina, has recently been completed in very short time by Mirrlees, Bickerton and Day, Limited, a member of the Hawker Siddeley Group. The 2,200-kW alternator, driven by a Mirrlees V-12 diesel engine, complete with Brush switchgear, three transformers, fuel and lubricating oil centrifuging equipment, waste heat recovery boiler, spare parts, ancilliary pipework and so on, was ordered at the end of September subject to delivery in Argentina before December, 1959, and was delivered on time.

Anglo-American Tractor Deal

Two leading British and American farm machinery manufacturers, the David Brown Tractor Division, Huddersfield, and the Oliver Corporation, Chicago, have signed a substantial purchasing agreement whereby the American company will buy tractors of David Brown manufacture and market them in the U.S.A., Canada and South America as an addition to its own range of tractors. The number of tractors involved is not disclosed. The agreement in no way affects the operation in North and South America of the present David Brown tractor distributors. This deal confirms Britain's current domination of world tractor markets, the approach having been made by the Americans. Recent figures show that British tractor exports outnumber those of all other tractor manufacturing countries combined.

Recent A.E.C. Orders

Despite very strong competition, A.E.C., Limited, has won a repeat order for 10 Regent V bus chassis for Oporto Municipality, placed through the A.E.C. distributor in Portugal, E. Pinto Baste Ca., Ltda. Double-deck bodies will be built by Uniao de Transportadores para Importacao e Comercia, Ltda., which concern is pioneering production of this type of bodywork in Portugal. Other overseas orders for A.E.C. vehicles includes one from Parkinson Howard, Limited, main contractor for the Tema Harbour project in Ghana for 10 10 cu. yd. Dumptruks, which will join a fleet of A.E.C. Monarchs already at work at Tema, while at home another large batch of Mercurys has been ordered by British Road Services. Other home orders include one from J. and H. Transport (Peckham) for 50 goods vehicles and one from Bolton Corporation for six Regent V double-deck buses.

SHIPPING AND SHIPBUILDING

Grain in Tankers

DUE to prevailing low freight rates, an increasing use is being made of oil tankers for the bulk carriage of grain to Continental ports. Recently the new Italian tanker *Marinella d'Amico* unloaded such a cargo in this country at Birkenhead—wheat from China. It was found that her draft was too deep for her to proceed direct to the Birkenhead grain berth and she entered Gladstone Dock to discharge 1,750 tons. Lightening began on January 7 and on January 12 discharge was transferred to the grain warehouse at East Float, Birkenhead. After that unloading proceeded at an average rate of about 1,350 tons a day, working from 8 a.m. to 7 p.m. However, this is about half the usual rate for a conventional grain carrier. The slower rate was due to unsuitable tank openings, which accept only one suction pipe instead of two. Of 12,900 gross tons, she was completed at Venice last year. During her voyage on charter from Tsingtao, the grain shipment originally destined for Czechoslovakia was bought by a Liverpool firm and the ship diverted to Birkenhead.

Ghana Orders from the Netherlands

GHANA has signed a contract with a Dutch yard to build eight ships for its Black Star Shipping Line, it is officially announced in Accra. The contract, which gives Ghana eight to 10 years' credit, was awarded to Koninklijke, Maatschappij de Schelde N.V., which will build six of the vessels, while the two others will be built by the West German L.M.G. (Orenstein-Koppel und Lübecker Maschinenbau) yard at Lubeck under sub-contract. Two of the new ships are due to be delivered early next year and the others at intervals up to the end of 1962.

Indian Shipping

DURING 1959 Indian shipping companies acquired 21 ships of 106,000 gross tons and 150,000 deadweight tons. With the acquisition of these vessels, Indian tonnage has now reached the figure of 741,000 gross tons. In addition, Indian companies have 80,000 gross tons of shipping under construction or on order in India and abroad, expected to be delivered before the end of the Second Five-Year Plan period by March 31, 1961. They are further negotiating for the purchase of nine secondhand vessels of some 20,000 gross tons. When all these vessels are delivered, Indian tonnage will go up to 840,000 gross tons, leaving some 60,000 tons to be acquired to attain the Second Plan target of 90,000 tons, not taking into account replacements.

Contract for Hydrofoil Ship

IT was announced last week that the U.S. Government had awarded a contract leading to the construction of a hydrofoil ship capable of carrying up to 100 passengers at speeds up to 90 m.p.h. The Maritime Administration said the 104-ft., 800-ton hydrofoil—a vessel with wing-like foils that lift the hull out of the water to reduce drag—would cost $5 million. The initial contract of $1,500,000 had been given to Dynamics Development, Incorporated, affiliated to the Grumman Aircraft Engineering Corporation. Construction of the vessel, which would be powered by an aircraft jet engine, was to begin immediately and it was expected to be ready for launching in June next year. The Soviet Union has announced plans for a similar vessel to carry 300 passengers at 62 m.p.h.

Welland Canal Improvements

THE Canadian Minister of Transport, Mr. G. Hees, recently visited the Welland Canal to view, in its initial stages, the work of constructing extensions to mooring walls in seven different locations in the canal, which is an integral part of the St. Lawrence Seaway. Extensions to the mooring walls—some 7,000 ft. in total length—are being provided so that when the canal is busy the total number of lockages in a given period may be increased by about 25 per cent. Up to now, by reason of the lack of adequate mooring walls, certain locks remain idle while vessels move from one lock to another. The provision of additional tying-up facilities will permit more intensive use of the locks. The Minister also conferred with officials of the St. Lawrence Seaway Authority with respect to the major maintenance programme being carried on this winter so that the possibility of breakdown in lock operation will be reduced to a minimum during the intensive activity expected for the canal in the 1960 navigation season. Cargo transported through the Welland Canal by the end of the 1959 season was 26,900,000 tons, which was 27 per cent greater than the 1958 traffic. Upbound movement increased by 92 per cent and downbound by 6 per cent. During the months of November and December, 1959, however, while the increase in upbound movement continued, the downbound tonnage also showed an increase of 19 per cent over 1958. Traffic carried through the St. Lawrence Seaway (Montreal—Lake Ontario) in the 1959 season totalled 8,300,000 tons or 71 per cent in excess of the cargo volume carried by the old St. Lawrence Canals in 1958. The upbound movement increased by 6,150,000 tons (132 per cent) and the downbound by 2,180,000 tons (31 per cent). Bulk cargo as defined by the tariff formed 91 per cent.

An order for 100 30-cwt. Commer chassis has been received by Rootes, Limited, through Craigs Garage (Staines), Limited, from Mylo Caterers (London), Limited, for ice-cream retailing.

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FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

Mann Egerton

Group trading profit of Mann Egerton and Co., Limited, for the year ended September 30, 1959, was £288,507 (£244,055) from which taxation deducted is £132,478 (£133,030). Net profit attributable to parent is £136,513 (£92,263). General reserve receives £50,000 (£45,000), development reserve £20,000 (nil), dividend on ordinary stock is 22½ per cent (17½ per cent). Carry forward £53,834 (£51,713).

Microcell Engineering

Microcell, Limited, announces that its commercial engineering division has been formed into a subsidiary company known as Microcell Engineering, Limited. It was decided to form the company to enable the expansion programme planned for the commercial engineering division to be carried out with greater effect. In addition to continuing its general engineering work and the production of aircraft passenger seats and aircraft components, the new company will be manufacturing seats for motor cars, buses, coaches, commercial vehicles, caravans, railways, and the comprehensive field of ships and boats.

SOCIAL AND PERSONAL

The late Mr. G. L. Darbyshire

WE regret to record the death, at the age of 76, of Mr. G. L. Darbyshire, C.B.E., a former vice-president and acting president of the London, Midland and Scottish Railway and chief regional officer of the London Midland Region of British Railways. He retired at the end of 1949. A portrait and biography appear on page 9 of this issue. The funeral was at Langleybury, near Watford, on Wednesday this week.

* * *

Sir George Horatio Nelson, who was awarded a barony in the New Year Honours List, is to assume the style and title of Baron Nelson of Stafford, of Hilcote Hall in the county of Stafford.

* * *

Reorganisation within A.E.C., Limited, on the engineering side has resulted in a number of new appointments. Mr. G. D. Robinson, former chief engineer, is now appointed engineering director and is succeeded by Mr. R. A. Fryars. Mr. L. H. Sewell, works manager, has become works director, and his successor is Mr. A. D. Fogg. Mr. Robinson received his early technical training with Dick, Kerr, joined Leyland Motors, Limited, in 1919 and the former Associated Equipment Co., Limited, in 1928; he became chief designer in 1930. From 1941 to 1945 he was seconded to the Ministry of Supply, where he served as Deputy Director of Tank Design. He was made chief engineer in 1950. Mr. Fryars has been assistant chief engineer of A.E.C. since 1951. He went to Southall in 1937 as an apprentice. He was a Whitworth prizewinner in 1941 and gained the coveted Hele-Shaw national certificate prize medal in the following year. Mr. Fryars, who was transferred to the staff as an assistant in the experimental department in 1942, was appointed assistant experimental engineer in 1947 and became experimental engineer in the following January. In 1949-50 he visited Canada and the U.S.A. to assist the A.E.C. dollar export drive and was in attendance at the New York show. He was made chief designer in 1950. Mr. L. H. Sewell, formerly director and works manager and now appointed works director, is made responsible for all factory functions, including production control. He joined A.E.C. in 1936, in 1945 became assistant works manager and in 1952 works manager. He joined the board of A.E.C., Limited, in April, 1959. Mr. A. D. Fogg, his successor as works manager, has been assistant works manager since 1954, previous to which he was with David Brown, Limited.

Mr. G. D. Robinson

Mr. R. A. Fryars

Mr. L. H. Sewell

Mr. A. D. Fogg

* * *

The annual dinner-dance of the Passenger Vehicle Operators Association will be held at Grosvenor House, London, W.1, on September 26.

* * *

With a view to closer integration of the A.E.C. service and spares departments, it has been decided that Mr. H. B. Elliott, service manager, will for the future assume overall control of both these departments.

* * *

Mr. D. A. Dymond has been appointed area manager for the East Central region of the A.E.C. sales organisation and will operate from Nottingham. Mr. R. E. Hollands has been appointed area manager for the Northern region, situated in Newcastle upon Tyne.

* * *

Mr. F. M. Wright, formerly district commercial officer, traffic manager's office, Kings Cross, has been appointed commercial superintendent (Great Northern), Eastern Region, British Railways. Mr. Wright joined the L.N.E.R. in 1933, and has been district commercial officer, Kings Cross, since September, 1957.

* * *

The council of the Institution of Locomotive Engineers has nominated Mr. D. C. Brown, C.B.E., as president for the next session, with Messrs. J. F. Harrison and W. H. W. Maass as vice-presidents. Ordinary members of council nominated are Messrs. K. Cantlie, M. A. Crane, I. C. Forsyth, J. H. P. Lloyd, C. T. Roberts, A. E. Robson and C. C. H. Wade.

* * *

Mr. Christopher Brunner, vice-chairman of the British Road Federation, is to present a paper, "Cities—Living with the Motor Vehicle," at the Friends Meeting House, Euston Road, London, on February 18. His paper examines closely the nature of cities and what is happening to them and suggests some things which must be done if their decline is to be prevented.

* * *

We record with regret the death of Mr. P. J. Baker, who retired in 1954 after 31 years as general manager and engineer of Southampton Corporation Transport Department. He was 70. Mr. Baker joined the department in 1923 as works superintendent from the Plymouth municipal undertaking, becoming general manager two years later. He was responsible for the design of a low-loading covered-top double-deck tramcar to pass under Southampton Bargate in 1923.

* * *

The Department of Extra-Mural Studies of the University of London announces a course of six university extension lectures on air pollution on Tuesdays beginning February 16. They will be held in the Physiology Lecture Theatre of St. Bartholomew's Hospital Medical College, Charterhouse Square, E.C.1, from 6.30 to 8 p.m. The fee for the course is 15s. Single lectures can be booked for 2s. 6d. from the deputy director (extension), Department of Extra-Mural Studies, Senate House, W.C.1. Lectures of particular interest to transport people are those on February 23 by Mr. A. T. Wilford, director of research, London Transport Executive, on the problems of internal combustion, and on March 15 by Dr. C. T. Newnham, regional medical officer, Western Region, British Railways, who will deal with pollution problems in railway modernisation.

M.P.T.A. Conference Dates

IT is announced that the 1960 annual conference of the Municipal Passenger Transport Association which is to be held in Douglas, Isle of Man, will take place during the week commencing September 12. Details of the programme will be made available later. The next annual meeting of the managers' section will be at Southampton on May 4 and 5.

* * *

Mr. K. W. Sims has been appointed export promotion manager of C. C. Wakefield and Co., Limited, parent company of the Castrol Oil group.

* * *

Mr. S. Tindale has been appointed general manager-marketing of the National Benzole Co., Limited, with responsibility for sales and physical operations.

* * *

Mr. J. W. Armit, M.A., B.Sc., Ph.D., formerly a member of the North Eastern Area Board, has been appointed a member of the Scottish Area Board of the B.T.C. and has therefore relinquished his membership of the North Eastern Area Board. Mr. Armit is a member of the B.T.C. productivity council and a director of Triplex Holdings, Limited.

Mr. R. M. Geddes, managing director, Dunlop Rubber Co., Limited, is to be the speaker at the informal luncheon of the Institute of Transport at the Connaught Rooms on February 2.

* * *

A special meeting of the Railway Benevolent Institution will be held at the Railway Clearing House, Eversholt Street, London, N.W.1, on February 22 at 4 p.m. to approve the amendment of certain bye-laws.

* * *

Mr. Theodore Instone, who recently retired as chairman of S. Instone and Co., Limited, of London, owing to ill-health, has been awarded the honour of Officer de l'Ordre de la Couronne by the Belgian Government.

* * *

Mr. J. E. M. Roberts, director of training and education, British Transport Commission, has been elected a member of council of the Institute of Transport to fill the vacancy occasioned by the death of Mr. F. Grundy.

* * *

Mr. G. P. Holt, M.B.E., has been elected a member of the Mersey Docks and Harbour Board in place of Colonel Sir Geoffrey Beazley, M.C., T.D., D.L., who resigned in December last. Mr. Holt is a partner of Alfred Holt and Company.

* * *

Arrangements are being made to hold this year's annual convention of the Railway Students Association in Western Germany on May 11-19, with headquarters at Hanover. Further details will be circulated in due course.

* * *

The Cunard Steam Ship Co., Limited, announces that Mr. J. C. Tomlinson, who has been secretary of that company and of Cunard White Star, Limited, since 1955, retired on January 1, and is succeeded by Mr. H. M. Goulden, who has been assistant secretary. Mr. Goulden has also been appointed secretary of Cunard White Star.

* * *

Rhoden Partners, Limited, design and development engineers in mechanical and production engineering, removed on January 5 from Park Crescent, London, W.1, to larger premises at 19 Fitzroy Square, London, W.1 (telephone Euston 9696). The firm develops specialised production machinery, mechanical handling equipment, automatic assembling devices, and packaging equipment.

* * *

The "Introduction to Industry" one-week training courses are again available to boys taking "A" level science subjects at the Chippenham works of the Westinghouse Brake and Signal Co., Limited. Two courses are arranged for April. They give a good insight into the engineering industry, its training facilities and future prospects. Applications should be sent to the personnel superintendent at Chippenham before March 1.

* * *

A 35,000 sq. ft. extension of the Acton Lane factory and head offices of Beckett, Laycock and Watkinson, Limited, was opened recently. The extension comprises factory space, a new office block on two floors, drawing offices, showroom, canteen and social centre, garage and car park. The unveiling of a commemorative plaque was performed by Mr. Patrick R. Beckett, grandson of the chairman and founder, Mr. J. E. Beckett, and son of the managing director, Mr. R. A. Beckett.

* * *

On January 22 a party of Argentine engineering students which has been visiting Continental countries and is now spending a fortnight at various British factories, attended a reception in London given by the Canning House Hispanic and Luso-Brazilian Councils and the Anglo-Argentine Society. Among the companies acting as hosts during the tour are Associated Electrical Industries, Balfour, Beatty, English Electric, Leyland Motors, Metropolitan-Cammell Carriage and Wagon, Rubery, Owen, Ruston and Hornsby, and United Steel.

* * *

Long-service awards were presented to 25 employees of the North Western Road Car Co., Limited, at a veterans' dinner last week. Mr. H. H. Morgan, foreman at Glossop depot, was presented with a gold wristlet watch in recognition of 40 years' service in the bus industry. Mr. T. Robert Williams, chairman of the company, presenting the awards, said that 430 employees had now received long-service awards and 308 were still with the company. While the bus industry was going through a period of readjustment he believed that it had a real future—service to the public at fares which are attractive.

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REPORTING RAILWAY PROGRESS

What is happening to our railways? There are big things going on. Modernisation is in full swing. Not for many years has British industry been so busy turning out new railway equipment. But the significant thing about this equipment is not the quantity that is being made; nor is it just the fact that it is new, and usually more powerful or more efficient than the old which it replaces. The great bulk of it is new in conception, different not so much in degree as in kind. Modernisation on the railways is nothing less than a technical revolution.

The mainspring of this revolution lies in new forms of power, in new techniques for signalling and control. Before the new ideas can take over, big engineering projects must prepare the way – bridges and flyovers must be built, existing bridges must be altered, track strengthened, stations reconstructed. Signalling must be concentrated in fewer, larger boxes, marshalling of wagons in fewer, more efficient yards. But all the time the new locomotives, the new, fast electric trains, are multiplying, bringing a new kind of railway into life.

All these things are the visible sign of a progressive, forward-looking industry. Behind all these new developments–trains, locomotives, depots, marshalling yards, track, signals – lies an equally new concept of service. The railways are getting not only a new look but a new approach – in organisation, in operating methods, in business dealings. To what extent is that new approach making itself felt now? How far, and how fast, is it being reflected in the quality of service? REPORTING RAILWAY PROGRESS will show how the railways are striving to serve the country better than ever before.

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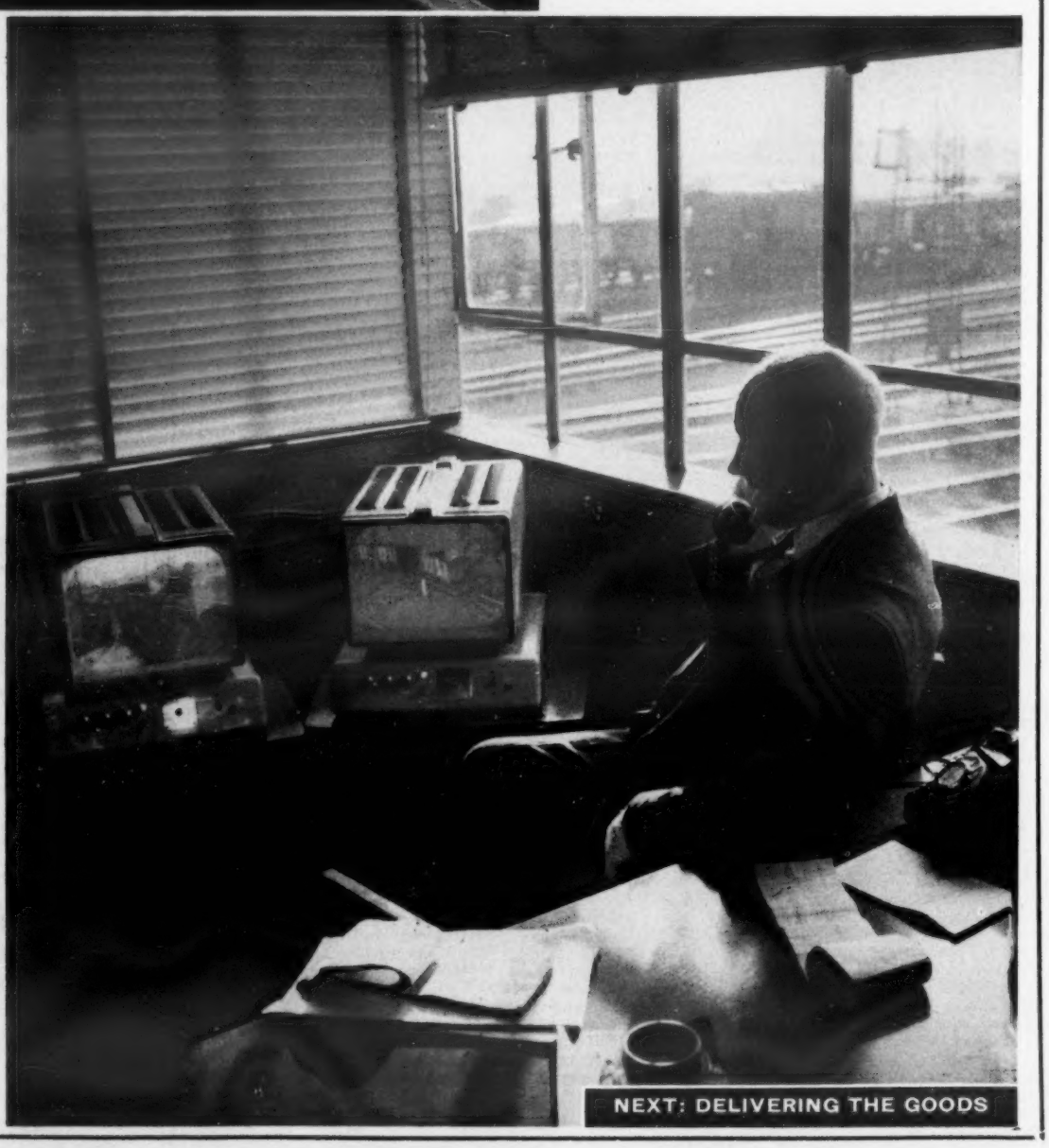

NEXT: DELIVERING THE GOODS

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